A Guide to Quality in Online Teaching and Learning

Teaching and learning online can be challenging for both tutor and students. In this guide, we try to shed light on different aspects of online tuition and what should be taken into consideration when planning for learning online. Our target group are course writers and tutors who teach online, whether on a blended or purely digital course. We hope the tips, advice and practical examples will be useful to our readers.
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Preface
This guide is the result of a very long process and has involved the goodwill and efforts from a lot of people.

Flexible Education Norway celebrate our 50-year anniversary in 2018. The quality of distance, and later online, education has been our raison d’etre all this time. We work to ensure that learners get the best support for their learning process, through good and relevant tuition, learning activities and assessment. There are many possibilities in online education, but there are also pitfalls.

Our member institutions, from the smallest online school to the largest university, know that working together to continuously improve the field of online training and education produces the best results. We do believe that the cooperation between institutions and people in quality assurance and innovation is one of the characteristics that has earned Scandinavian education its good reputation.

The first edition of this guide was written and published in Norwegian in 2017, and immediately the requests for an English version were made. After a thorough discussion in the R&D committee of EADL, we decided to translate it as it were, keeping the Scandinavian approach and the proximity to the Norwegian education system. We believe that the advices in the guide work best in the original context. The Norwegian Qualification System corresponds with the European (explained later in the guide) and the theoretical background for the guide is mainly international. We sincerely hope that educators will find this guide useful when planning and executing their tuition.

The guide was written by Flexible Education Norway’s standing quality committee and translated with the help of EADL. Special thanks to Anne B. Swanberg, Mette Villand Reichelt, Toril Eikaas Eide, Gjermund Eikli, Tony Hopwood and Kari Olstad.

Torhild Slåtto John Trasler

Oslo and Manchester, February 2018
Introduction

Why online tuition? Online studies are one part of what we refer to as flexible education. The flexibility and the opportunity to study free of the restrictions of time and place are perhaps the most characteristic and most beneficial aspects of studying online. Both student and tutor benefit from this flexibility. Another advantage is the room for variation. Students can apply different study techniques online, and have access to varied learning resources in different media. Online studies also provide a unique opportunity to co-create knowledge in collaborative and cooperative networks.

We know that tutors need didactic, pedagogical and subject knowledge. When tutoring on online courses or in other digitally supported education, they also need the knowledge of how digital technology can enhance teaching and learning processes. Digital educational technology both creates new opportunities and raises many questions.

What knowledge, skills and competencies should students develop, and how can we help them achieve the intended learning outcomes? We always ask ourselves these questions when planning a course or a study unit, but how do we do it online? How do we use digital technology to help develop effective study methods and facilitate good learning processes that stimulate and support the students’ efforts to learn and the learning outcome?

What study methods and learning activities are best suited to stimulate and support students’ learning? How can we facilitate this online? And which digital platforms and tools can and should we use? Creating good courses and study units demands careful thinking through and solid planning. Perhaps online courses and units require even more thorough planning. This guide will hopefully be helpful in the planning process, partly by stimulating reflection and discussion, and partly by providing practical summaries, tips, examples and advice.

The target groups for this guide are first and foremost developers, planners and executors of online education, but we hope that managers, administrators and ICT personnel will find it useful, too.
About the guide
We believe the guide can be read from beginning to end as a textbook about online education. This could be a beneficial approach, especially for academic staff new to tuition or academic responsibility, or new to tutoring online. The guide could also be a source for ideas and inspiration. Throughout the book, there are ‘boxes’ with tips and examples of good practice shared by experienced educators, or with issues to consider when planning a course or a study unit, and when planning the tuition. These could stimulate discussion within the academic teams or serve as points on a checklist. The guide is in two parts. Part 1 is based on a didactic relation model, and follows the path of the imagined planning and execution of a course. In Part 2, you will find specialisation chapters, further examples of best practice, terms, examples of digital tools and concrete suggestions for use related to learning outcome. In addition, there is a form for course analysis and planning.

About quality in online tuition
In a paper from the University of Bergen, Quality in education (2012)¹, the term ‘tuition’ is used:

‘... both about the actual interaction between teacher and student, and broadly about where the entire learning process happens.’

It is also stated that:

‘It is the student who is learning: others can at best be facilitators, either in the role of supporter, mirror or corrective.’

Online education is mainly conducted via the internet. Online, students can have access to subject material and other information. They can process the material individually or cooperatively through different activities. The internet is a space for facilitating learning pathways with collaboration, discussion, reflection, and for sharing experience and presentations from other students as well as tutors. The internet can therefore be an arena for everything that characterises and is necessary for good tutoring and learning.

The Quality Committee can see no real difference between quality in education online and quality in education on a campus. Education today is probably more often than not a blend of these modes of delivery. More importantly, when using the internet as an arena for tutoring, there will be

some opportunities and some challenges that differ from the ones we meet when tutoring face-to-face. This guide concerns itself with these opportunities and challenges.

The Norwegian Agency for Quality Assurance in Education has defined quality of education in these words:

‘By quality of education we mean the quality and relevance of educational institutions’ facilitation of students’ learning and students’ learning outcomes on completion of their educational programme.’²

It is necessary to plan thoroughly, think through the choices and facilitate all aspects of the students’ learning for them to achieve the intended learning outcome on completion of the course. This is the case independent of which arena and which technology is used.

In the following chapters, we will take a closer look at various factors that independently and together can contribute to good quality in online tuition.

Part 1: Planning for good tuition
- a model
1: The Didactic Relation Model – in online tuition
The so-called Didactic Relation Model might be a typical Norwegian instrument. It demonstrates how the different aspects of tuition are related and influence each other. When we change one, we need to reconsider the others. The model can be a good starting point and instrument for planning tuition. An early model was developed by Bjørndal and Lieberg³ in 1978. The model illustrated below is further developed from Bent Kure’s version⁴, which is adapted to a modern, digital context where the tuition is aligned to the learning outcomes. The model can be used as a checklist for planning online tuition. In this first part of the guide, the order of the chapters is the same as the elements of the model.

Illustration 1: The Didactic Relation Model

Using this model for analysis, preferably in multiple cycles, can both serve as

⁴ Presented by Bent Kure, Lillehammer University College, 21.11.2002
quality assurance and provide documentation to show that all the factors that are most important for a good learning and tutoring process have been taken into consideration. The final result will still have to be a compromise, as it is not possible to perfect all elements at the same time (to help with the analysis, we have added a checklist at the very end of the guide). To ensure continuous quality assurance, the cycle is repeated after each course evaluation. The following analysis and evaluation does not only concern online education, but provides the basis for tuition of high quality, whether it is online, face-to-face or a blend of the two.

**Purpose and settings**
The purpose of the course must be identified early in the process. What should be achieved? It could, for example, be to increase the number of trained nurses in a specific region, or update the mathematical skills within a group of teachers. It is important to know why the course should be developed, what outcome is aimed for and at what level the academic content needs to be to achieve the aim.

Tuition is planned within settings. The settings are the conditions the individual tutor cannot easily influence, and that affect and often restrict the tuition. Examples of such restrictions could be not having access to the required technology, a lack of time and finances, or insufficient professional resources or competence. Tuition is also planned within the settings of the institution’s policies and choices, like the choice of an LMS or digital learning area, or a decision to make all courses a blend of online and face-to-face tuition.

**2: Target group**
Knowing the target group for the course, and knowing the learners’ backgrounds and assumptions is important for the planning and adaption of the course, for example, in the choice of assignments and the presentation of the content. The students’ age, work experience, stage of life and expectations for the course are all relevant for how the tuition can be facilitated in a good way. Whether they are studying on their own initiative or were enrolled by others, like an employer, a state department or charitable organisation, can influence their motivation. It is also important to know about their digital skills; how comfortable they are studying online and what support they might need.

Some student target groups are very diverse, others more homogenous.
There are several studies of online students. In 2016, the typical online student was an adult who combined studies with work and family, and who wanted to study when and where it was convenient for her/him. The student led a busy life and wanted to learn as effectively and flexibly as possible.

The online student brings experience from work and adult life in resourceful ways into the course. Some keywords when planning for online learning processes for adults:

- Active participation and problem solving with relevant cases, tasks and activities.
- Reflection upon their own learning and dialogue in process-oriented activities.
- Commitment to knowledge building, progression, seeking common understanding and expanding one’s own and others’ frameworks for comprehension.
- Structured learning pathways, clear goals and sub goals, experience of progression and relevance.
- Use experiences across learning areas, use their full potential, develop in different roles including workplace, family and leisure.

As colleges and universities offer more of their regular study programmes online, there are naturally more young and first-time students among the online students.

In the planning phase, there is often little specific knowledge about the target group, but there is more information to be obtained from the students themselves at the start of the course, usually by having them present themselves to one another and doing exercises on the learning platform to become more confident and secure. At the start of the course (or even at the application stage) some educators include a small survey to find out more about the students’ background, their motivation and their expectations for the course.

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5 We have used different statistics from Norwegian online schools; Rønning, W. (2013) *Nettskolestudenter – motiver, mestring og ambisjoner*, published by NTNU; and Schneller, C. and Holmberg, C. (2014) *Distance education in European higher education – the students*, published by ICDE, UNESCO Institute for Lifelong Learning and StudyPortals B.V.


3: Content

The purpose of a course and the nature of the target group are related to, and affect, the content of the course. There are important questions in the planning and the choice of content to be answered. What is characteristic of the subject to be taught? Which elements of the subject should be taught? What is the essence? What content must be included? At what level should the course be taught? What effect will the outcome have for our society?

Arild Raaheim⁸ refers to Asko Karjalainen⁹ and emphasizes

‘The need to determine the curriculum and work requirements based on a thorough analysis of that which is the core of the individual subject. (…) The core analysis is about, within the subject, discussing and getting to an agreement on how to understand the subject and what the students’ outcome should be after completion of the tuition.’¹⁰

(Raaheim 2016 page 93)

In his book Raaheim refers to Karjalainen’s ‘core content divider’ when he divides knowledge, which also includes skills, into three categories of importance:

1. **Essential knowledge:** underlying principles and knowledge structures. The deep learning (mastery) of this content is a necessity for further studying. (Must know)

2. **Supplementary knowledge:** more detailed information which is useful but not compulsory. (Should know)

3. **Specialised knowledge:** the most specific details of the case/subject matter. (Nice to know)

(Karjalainen et al 2006 page 31)

Raaheim refers to Karjalainen emphasizing that such a core analysis is important to prevent the students’ workload from becoming too large and thus exceeding their capacity to learn. This means, among other things, that after having decided what belongs to each of the three categories, one

‘…next time (must) make sure that the academic activities (syllabus, teaching, practical work, assessment form and content) reflect these’. (Raaheim 2016 page 94)

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⁸ Raaheim, A. (2016) Eksamensrevolusjonen, Gyldendal Norsk Forlag

⁹ Karjalainen, A; Alha, K. and Jutila, S. (2006) Give me time to think -determining student workload in higher education, Oulu University press

Scope is the number of working hours it is calculated that the individual student will spend on the course or study unit. It is the amount of work indicated in credits. In Norway, a full-time academic year of tertiary education is 60 ECTS/ECVET equivalents and 1500-1800 study hours.¹¹ The scope of work may vary between the different institutions, but one credit is between 25 and 30 study hours, which may include video lectures, webinars, tutoring, assignments, practice, data collection, project work, self-study or other learning activities.

Learning outcomes, learning activities and assessment, and the interaction between these, will be the topics of the following chapters.

It is important that the academic content of the course is organised or structured appropriately. Structure deals with both the order of the various content components in the course and the progression. How can we achieve a logical order and facilitate progressive and appropriate progression in teaching? These questions are discussed in chapter 6.

When planning courses, we must of course take into account the fact that subjects are different. For example, tuition in mathematics is, and must be, different from tuition in psychology.

**To consider:**

- Does the subject have an existing teaching tradition we can or should take into account? Is it time to rethink the existing tradition?
- Which learning resources already exist for this or for a similar subject? How can we use them?
- What is the relationship between theory and practice in this subject? How should this affect teaching and studying methods?
- What are the prerequisites for the students to be able to study at this academic level?
- Is discussion and dialogue an important part of the learning process?
- Is writing an important part of the subject and the learning process?
- Is collaboration an important part of learning this subject?
- Is coaching important?
- How to build on the student’s existing knowledge?

¹¹ Stated in Norwegian regulations: Veiledning til studietilsynsforskriften (September 2013), NOKUTS veiledninger and Veiledning til fagskoletilsynsforskriften (November 2014) version 2.0, NOKUTS veiledninger
4: Learning outcomes

The results of the core analysis and the definition of the content form the basis for, and closely follow, the description of the learning outcomes for the course or the subject. Learning outcomes are introduced in Norway in the Norwegian Qualifications Framework for Lifelong Learning (NQF)\(^{12}\) (corresponding with the European framework).\(^{13}\) The NQF is central to the planning and implementation of formal education.

Learning outcomes describe the knowledge, skills and competencies a student has on completing and passing a study unit or course. They do not describe the purpose or intentions of the institution or the tutor.

The NQF describes the three types of learning outcomes in the following way:

• **Knowledge** - the understanding of theories, facts, principles, procedures in subject areas and/or occupations.

• **Skills** - the ability to utilise knowledge to solve problems or tasks (cognitive, practical, creative and communication skills).

• **General competence** - the ability to utilise knowledge and skills in an independent manner in different situations.\(^{14}\)

The NQF describes how the learning outcomes descriptors can be formulated and defined at different educational levels such as vocational, bachelor’s and master’s level. In this guide, we usually refer to these levels where we quote from learning outcomes descriptors in the NQF.

Writing good, comprehensive and relevant learning outcomes can be difficult, but these are crucial in planning and designing a course or unit, and they are an important part of the study plan and curriculum. In essence, they form the foundation on which the rest of the course is based. There is therefore an additional chapter on learning outcomes, descriptors and competence levels in Part 2 of this guide.

When writing learning outcomes, it is important to consider the students’ workload.

**Constructive alignment in tuition**

A key issue in planning a course is how to plan learning activities and assessment methods that are consistent with the intended learning outcomes,
and which help students to achieve the learning outcomes. How should students work so that they develop skills to ‘reflect on their own academic practice and adjust it under supervision’ and how can we organise the tuition so that the candidate at the end of the course ‘can find and refer to information and academic material and relate it to an issue’? What are good and relevant ways to assess whether the candidate has achieved the knowledge, skills and competencies described in the curriculum?

Not all online courses are regulated by the NQF. There may be informal postgraduate education, basic training in the workplace, or personal development courses outside the formal educational system. Nevertheless, the principles of quality are the same, and it may be useful to incorporate descriptions of learning outcomes, learning activities and assessment methods in the description of the course.

In the following, we will focus more on the pedagogical and didactic considerations that we consider important when we are aiming to facilitate the student learning processes, organise content, plan guidance and choose assessment and learning activities, all with particular attention to the good use of digital technology.

Inspired by John Biggs and Catherine Tang, we can illustrate the connection between learning outcomes, final assessment and learning activities in this way.\textsuperscript{15}

\textit{Illustration 2: in the theory of constructive alignment, learning outcome, assessment and learning activities are aligned}\textsuperscript{16}


\textsuperscript{16} As presented by A.B. Swanberg at Norgesuniversitetet 18.03.2009
To consider:

- Are the learning outcomes relevant to, and in accordance with, the objectives and content of the course?
- Is it realistic to suppose that the learning outcomes can be achieved within the course scope and time span?
- Are the learning outcomes in line with relevant level in NQF (e.g., vocational school, bachelor or master)?
- How planning can be carried out for learning activities that provide students with the opportunity to achieve the different learning outcomes described in the study plan/curriculum?

5: Pedagogical approach

Pedagogical approach, or educational approach, is the view the educator takes about learning, what promotes learning and what could inhibit learning, and thus how best to help the students to achieve the learning outcomes.

Traditionally, education and teaching has focused mostly on the individual student who learns alone and in dialogue with their teacher. A social constructivist learning view, on the other hand, suggests that we learn within the framework of our thought patterns and our understanding, and also that we are part of a learning community or learning group that learns and develops knowledge together. People benefit from others and become more competent through others. Language and communication are important in the learning processes from the social constructivist point of view. This is the approach taken by the writers of this guide. Central goals are student-centred learning, student active learning, collaborative learning and social learning based on the view that students learn effectively through being active, through doing and through interaction with fellow students and tutors. This is an important starting point when we facilitate learning and teaching activities and set up meeting places through digital media.

In online education, student activity and student communication and interaction with fellow students, teachers and learning materials are conducted digitally. The chapter ‘Learning Activities and Resources’ deals with tools and methods for digital communication, interaction, problem solving and other
activities, and in Part 2 a number of concrete examples, tips and instances of good practice are presented.

6: Organising
There are different ways of organising and structuring online courses. Many factors need to be considered, and this chapter addresses some of them. For example, the organisation may affect the degree of flexibility for the students and the opportunities for them to collaborate and interact with their peers. In the frame below are some questions that may be relevant.

To consider:

- How should the content be divided into appropriate categories, and in which order should these categories appear? What is based on what, and how can a good and gradual progression be achieved?
- What types of learning resources are needed - and in what order should they be presented?
- Should learning materials and assignments be published in a fixed order week by week or module by module, or should everything be available right from the start of the course?
- Are there to be face-to-face meetings in the course, or will everything happen online?
- Which media, platforms and digital tools should be used to distribute the learning resources? What is the learning arena like?
- How should the different elements - learning resources, tasks and learning activities - be organised in the digital learning arena?
- What visual style, what design and what layout should the digital learning arena have?
- How much of the teaching and learning activity should or may be synchronous (in real time) and how much should be asynchronous?
- Should all students start and end at the same time, or is the start and progress individual?
- Is there a class or group who will follow the course together, or is participation to be individual?
- Should there be group activities and collaborative learning in the study? Which tools should be used?

Meetings
Online studies can still have physical meetings, and face-to-face courses can have elements of online tuition and support. Many courses are conducted
without any physical attendance, and some people will prioritise the flexibility these courses provide. Online courses can open opportunities for students who could not otherwise have participated, while the combination of online and face-to-face benefits from the qualities of both the digital and the physical worlds.

An example of an organisation which employs the latter approach is the Norwegian Online School.¹⁷ This uses a model where it is possible to attend courses without ever meeting in real life, but students are offered a voluntary start-up meeting. The start-up session lowers students’ resistance to online participation, and the online school gets an additional channel to motivate students and facilitate relationships.

If the institution chooses to offer face-to-face meetings as a mandatory or voluntary part of the course, it is important to prioritise using these meetings for activities and interaction that are difficult online. Lectures and other forms of dissemination can be done in a digital learning arena, while the physical meetings should be used for activities where students learn through collaborating, creating together, communicating, reflecting and discussing. This guide will not address physical meetings and gatherings, but concentrate on online learning and teaching activities.

**Individual or common progression**

Many Norwegian providers of online education have long experience of arranging tuition so that participants can start whenever they want and progress at their own pace. For example, NKI¹⁸ says that they have ‘study start every day throughout the year’ and that the only deadline the student has to deal with is the final exam. The flexibility for the student is considerable. For some students, this may be a prerequisite for being able to participate, while others cannot easily cope with the freedom and they need a learning environment that drives them forward.

Working and communicating with other students is an important part of the learning process. A course that offers every student the opportunity to start and end whenever they want, presents challenges in terms of social learning processes and cooperation. Dalsgaard and Paulsen put forward ‘Transparency in Cooperative Online Education’¹⁹ as a way of interacting between students. Transparency means that students gain access to other students’ learning processes. This allows for

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¹⁷ A Norwegian online school which offers courses on different levels, mostly non-credit
¹⁸ A Norwegian online school which offers education on many levels, both formal and development courses
community learning between students in studies with free progression. If there is a large number of students on the course, those who are at the same stage can be linked and encouraged to cooperate.

We see examples where educational institutions systematically create collaborative and cooperative opportunities to compensate for students not making the same progress, and this tells us that they put a great deal of emphasis on the social side of learning. At the same time, it tells us that it is possible to create good learning environments without the students’ starting and ending at the same time. In a course with an open start and progression, you can have discussion forums attached to each module or topic. In addition, there is evidence that the learning platform creates voluntary cooperation systems by allowing students to search for and contact each other. Sharing progression and profiles is an element in such systems.²⁰

Many institutions offer courses where the students start at the same time and follow the same progression from week to week, but students can choose their own pace during the week. Flexibility is thus limited, but the model makes it possible to establish classes and groups with common digital work and meeting arenas. Forum discussions, group assignments and social interaction in the group are good options. Because the students will be working on the same topic in the same week, they can cooperate asynchronously. This model also supports the opportunity to add to the course with synchronous learning activities, such as video conferencing, chat and webinars where students can participate with input and questions. In these models, we often see that students establish their own cooperative arenas, both synchronous and asynchronous, typically using different social media. Evaluations of these synchronous online courses and units tell us that students are very satisfied with a structure that clearly communicates what is expected of them.

**Structuring content online**

High-quality tuition is the result of a thorough academic process, a systematic reflection that results in a number of pedagogical and didactic choices for the entire learning process.

There is a need to structure the content - the learning resources, and the tasks and assignments. The course could for example be divided into modules or units that build upon each other and therefore create a good progression, and that include a variety of learning materials.

A part of the structure is also the facilitation of learning activities the students

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²⁰ This example is from the Norwegian online school Høyskolen Kristiania Nettstudier, which offers education on many levels, mostly formal courses
are expected to perform online. For example, they may participate in role play, create presentations in different formats for their peers to defend or oppose, solve problems and discuss cases, participate in polls, assess and provide input to their peers and have their peers assess and provide input to them, respond to (or even make) multiple choice tests, attend lectures, write reflection blogs and discuss in webinars or discussion groups.

All of these elements have their time and place in the progression of the course, and students need to be given information about what to do and when to do it. They need advice on the best order to work with learning materials and tasks; on which topics and items that are most and least relevant and how they overlap, complement and/or amplify each other.

**Creating online learning activities**

We want the online learning arena to be as clear, informative and intuitive as possible, and there are many ways to structure content on the learning platform. Some decisions have already been made for the individual tutor because of the settings on the learning platform the educational institution has chosen. But there are still some options. Below we have collected advice, tips and examples of good practice from Norwegian educational institutions with extensive experience in online tuition and the use of different learning platforms.
Good practice:

- Present items in the order you want the students to access them.
- Go from simple to complex through the course.
- Present the most important items before the less important, either by placing them higher on the list or by placing the less important ones behind an additional link.
- Try not to have too many items at each level, as this can be confusing.
- In a programme with free progression, the order of the items must be clear, since everything must remain open all the time. In courses with a set progression, opening and closing of items can help control the progression and thus form part of the structure.
- Make instructions as precise and unambiguous as possible.
- It should be easy to go back and revise resources later in the course; either the entire structure is visible all the time (as is common in studies with free progression) or old items are placed in an archive (which is the usual practice in courses with a set progression).
- Any archives should follow common meta-tagging practices (such as title, date, module, and possibly level).
- If the learning resources are organised in folders, the structure should follow the subject modules or chronology, not the item types. That is, the folders are called 'Week 1, Week 2, Week 3 ...' or 'Unit 1 Penal Code, Unit 2 Administrative Law ...' rather than 'Videos, Tests, PDFs ...'.
- Content that is 'hidden behind' levels of folders and hyperlinks can be more difficult for the students to find.
- Consistency in design and naming of resources from unit to unit and from course to course also makes the overview better and navigation easier.
- Clearly identify which hyperlinks students are expected to click on.
- We often want to use different learning resources from the internet and they come in many different formats. A unified choice of file formats makes it easier for the student to plan their studying.
- Choose file formats that do not require installation of other applications.
- The learning platform is a closed area in which the student should feel safe. It is therefore good practice to make it clear if digital learning resources are outside the platform, especially if it is expected that the student contributes opinions, comments etc.
- Hyperlinks to external resources should follow the same procedure as hyperlinks to your own content on the platform: an explanation of the purpose of the resource, and a check that the link goes directly to the relevant item. Consistent and well-designed internal web pages are of little help if important resources are hidden in untidy external websites. Sometimes, of course, it is part of the educational programme that the student should practice navigating even external resources, but then this purpose must be clearly stated.
- Consider leaving external resources open in a new tab so students can easily return to the learning platform or the digital learning arena.
Accessibility/universal design
There are a number of requirements for website design. Some are regulated by law. In Norway, this includes the Discrimination and Accessibility Act and the regulations of Universal Design of Information and Communication Technologies (ICT) solutions. At the time of writing (September 2016), education is not covered by these regulations, but there are proposals for a new law. The standard commonly used to describe good universal design is called WCAG 2.0. (or 2.1 by the time of translation).²¹ Most teachers will not need to go into this standard, but principles of universal design often align with principles for the good design of online resources in general. There is therefore a separate chapter with more advice and tips on designing content online in Part 2 of the guide.

7: learning activities and resources
In this chapter, we talk about how we could plan to use digital learning activities and resources to enhance the learning process. Selection of digital tools is therefore critical. We will mainly focus on common features of learning management systems (LMS) as most educational institutions seem to prefer using these. You will find a chapter about digital tools, with concrete examples and tips on how to use them, in Part 2 of this guide.

Planning for student activity
We have already emphasized how important it is that students work actively with the learning resources, and that tuition is planned and carried out with this aim in mind.

The book Teaching for Quality Learning at University by John Biggs and Catherine Tang²² is recommended to supplement this chapter. It is subtitled ‘What the student does’. That sums up what we are trying to do: plan for students to be active so that the result is learning.

²¹ https://www.w3.org/TR/WCAG20/ (accessed 19.09.2017)
Illustration 3 represents an example of how to plan learning activities to achieve the intended learning outcomes. Even though assessment and feedback should be considered learning activities, all aspects of assessment are covered in the chapter ‘Assessment of and for learning’.

Illustration 3: Examples of a learning process with student active learning activities

When planning digital learning activities and resources, we should ask ourselves these questions:
- Who are the learners?
- What should they learn?
- What is the role of the tutor in this process?
- How can we facilitate a good learning environment?

In previous chapters, we asked these questions on a more general level. When planning good learning activities, it is time to be more specific.

**Who are the learners and what should they learn?**

Chapter 2 was about identifying the target group for the study unit or course. Now, when we are describing different learning activities and resources, it is again important to focus on who the learners are. As previously mentioned, online courses are typically attended by employed adults, but as blended education grows in popularity, an increasingly large group of younger people will study online.
Age and experience are only two of the aspects to consider when planning online learning. Individual variations in how people learn are also influenced by personality, capabilities and learning styles. A good piece of advice is to vary the digital learning activities and resources to suit a heterogenous student group. One variation could be that a video or sound file is accompanied by a transcript of the text for downloading and reading. Another could be to offer one and the same assignment with different levels of complexity.

In chapters 3 and 4, we talked about learning outcomes. This is covered in more detail in a chapter in Part 2 of this guide. Descriptions of learning outcomes should be a visible part of the tuition process so that the students are aware of what outcomes they are aiming to achieve, and what outcomes their tutor is trying to help them to achieve. These descriptions are important for awareness and motivation. It is therefore advisable to rephrase or deconstruct the learning outcomes, so that it is very clear to the students what they should know and be able to do after having completed the study unit or course. The tutor should explain, discuss and justify the alignment between learning activities and learning outcomes, and should aim to involve the students in this awareness process.

What is the tutor’s role?
Teaching is rarely an individual responsibility, and there may be more than one tutor role in a course. From surveys²³, we know that contact with the tutor is very important for students. In addition to clarifying expectations for students, it is therefore important that tutors agree on how to divide the responsibilities between them so that students’ expectations are met satisfactorily.

The box below lists some questions you can ask yourself when planning the tuition. No responses are more correct than others to these questions. Perhaps the most important thing is to discuss them in the tutor team.

²³ For example the Norwegian reports Rønning, W. (2013) Nettskolestudenter – motiver, mestring og ambisjoner, published by NTNU and studiebarometeret.no; and Schneller, C. and Holmberg, C. (2014) Distance education in European higher education – the students, published by ICDE, UNESCO Institute for Lifelong Learning and StudyPortals B.V.
To consider:

- Who will support the students, and in what areas (e.g. academic and administrative)?
- Should the teachers divide the students into groups and guide one group each, or have shared responsibility?
- What is in the support? Assessment and feedback of assignments, one to one or group guidance, answers to direct questions, discussion forum moderation, participation in discussions?
- Should the teachers be digitally present with the students in groups on the learning platform or on social media?
- Should tasks be shared between the tutors so that some guide students and some make sure that the content of the learning arena is updated, or should everybody have the same tasks? And if the latter, should there be a timetable?

In 2003, Robert Mason wrote about his experience at The Open University that the round-the-clock access to the tutor enabled by technology has made some students expect immediate and personal follow-up on every written inquiry.²⁴ Social media has boosted the expectation of almost immediate response.

The number of requests combined with an expectation of immediate feedback on input and submissions can stress tutors and make waiting students frustrated. It is therefore important to clarify mutual expectations and obligations before, and when, the course starts.

How to facilitate a good learning environment online

The foundation of a good learning environment rests on many pillars: the scope of the course, the course content, the student group, the tutor(s) and supervisor(s), information, support and the types of assignment and assessment. The tutor’s and planner’s pedagogical approach, as mentioned in chapter 5, also shapes the learning environment.

In a good learning environment, the learners feel safe. Safety and well-being depend on several factors. Good information about plans and content, and clarified expectations and obligations are central here. Communication with the students begins even before the course starts.

A prospective student needs information about content, tuition and learning activities, and organisation and assessment methods. It is crucial for the student to know if they are expected to attend synchronous online meetings or face-to-face meetings. What can the student expect from the teacher and the institution as regards guidance and other support? What does the institution expect from the student? What is the expected amount of work? Are there mandatory tasks to be submitted and what deadlines must be met?

Students must feel confident about what to do, about how they can master the tasks they are given and that the tutor will guide them. The same goes for the technology. Students must know where they can get help and support if they get stuck. Social conditions and well-being are also important. We want students to feel safe within the student group and not be afraid of being judged by other students. It is important to establish good relations as soon as possible. Some course planners choose to give students access to the learning platform before the course starts. You can post a welcome message, the tutor’s contact information and give access to learning resources.

To develop and expand the interaction between students, we start with Gilly Salmon’s Five Stage Model.²⁶ The model shows how you can support students in a digital learning environment. For this model to work well, the course and the activities should be thoroughly planned in advance.

²⁵ Quality Standards for Online Education – Quality at every Stage (2015) published by Flexible Education Norway

Illustration 4: Model for planning support for students in a digital learning environment (CC BY-NC-ND)

The model is read bottom up. Salmon emphasizes how important it is to give the students enough time on the first two steps; Access and Motivation and Online Socialisation. These build confidence and relationships through simple but meaningful tasks. An assignment is meaningful if it is related to the course or unit’s learning outcomes.

One way of helping students and tutors to build relationships is having them present themselves with open profiles on the learning platform, and share learning moments and insights through microblogging or posting comments. Simple social interaction can also be used directly for educational purposes, like online comments related to other students’ work and posts. This way, the relationship between online students who do not meet one another face-to-face and in real time can still be characterised by intimacy and immediacy,²⁷ which in turn can contribute to more communication and interaction among the students.²⁸

²⁸ The examples are from Norsk Nettskole
Steps three and four in Salmon’s model are ‘Information Exchange’ and ‘Knowledge Construction’. In this chapter of the guide, we relate to these steps when writing about learning activities. The two different shades in the model are there to emphasise that at each stage of development there will be both educational and technological support needed to access the various digital resources and arenas and to make the best use of them.

**Choosing digital tools for the learning activities**

Digital learning activities and resources are developed with the aim of achieving learning outcomes; knowledge, skills and general competence at different levels (as described in the NQF). For the student to develop in-depth knowledge and be able to analyse, process and apply it in new areas in an ethically sound manner will require different types of teaching and learning activity rather than the imparting of more superficial theoretical knowledge.

The choice of digital tools is important. Digital tools include both software and hardware. Although online education necessarily takes place online, course developers can also choose to make resources and tasks downloadable or otherwise make it possible for students to work with them offline.

*Didactic considerations*

The choice of digital tools is influenced by how they contribute to the students’ achieving the planned learning outcome:

1. They can help the student understand what they are going to learn (learning outcome).
2. They can help to support the student achieve the learning outcome (learning activities).
3. They indicate whether the student has achieved the expected learning outcome, and to what extent (assessment).
Maybe our perceptions of what we see as good tuition will be influenced by the development of new digital tools for learning and teaching. One example is that we can now, through mobile technology and even sensors like wearables, gently push the students into interacting with learning resources when they are not prepared for it. One example is micro lectures, as described in Part 2.

*Technological considerations*

We should choose software that works just as well on Mac as on PC, on Android as on iPhone/iPad. Although many applications and learning platforms have a responsive design, different devices offer different advantages and disadvantages.

Often educational software and platforms are partly or entirely based on templates. This is useful because most of us do not have sufficiently good programming skills to customise our own solutions, and because the use of templates is a way to secure a good user interface and ensure that important elements are included in a course.

In the rest of this chapter, we will talk about the typical features of LMSs or learning platforms as they are used by most educational institutions. In Part 2 of the guide, we follow up with a number of concrete examples of digital tools that are widely used in education. Many are especially designed for learning and teaching. Others are designed for more general use in working life, entertainment and social communication or self-representation, but can also be used for learning.

*LMS as the main digital area*

Institutions which offer online education almost always have some form of digital learning arena, commonly referred to as a Learning Management System (LMS) or Virtual Learning Environment (VLE). In this guide, we have used the expression ‘learning platform’ to include all the interpretations. Learning platforms have a wide range of functions and provide opportunities for different learning activities or teaching methods. In addition, they are usually integrated with other advanced administrative software. The choice of learning platform and how it should be used is usually taken at institution level or higher. The task of the course developers and teachers is to familiarise themselves with the features of the platform and the opportunities they provide for learning activities where the students and their learning processes are central.

29. Responsive design adapts to the devices and will therefore have a different look on e.g. an iPhone than a PC.
Many of the solutions educational institutions work with today, and most of the digital tools that we describe in Part 2 of the guide, are cloud based, that is, the data is stored on servers located in places other than at the institution or with the solution provider, and these places are not necessarily identified.

An important argument for using a learning platform is precisely that the educational institution has control over the data and users. For the teachers, it also means that they have everything in one place and that they can require more mandatory student presence on a safe and closed platform than they can in an open commercial arena. Tutors can have full control over who is added as a member in the individual group, subject or course in the learning platform, and how they are grouped.

Learning platforms usually have most of the following features:

- The capacity to publish and save files in various formats, such as videos, audio files, image material, texts, graphics and simulations.
- Tools for linking between subjects, websites and other open or closed resources. Single sign on to other applications and systems, so new logins are not required.
- Digital bulletin boards for joint messages to students from the tutors or administration.
- Options to establish discussion forums for different purposes and groups of different sizes, from plenary to very small groups. Often multimedia friendly.
- Test and quiz tools, which can be used to create self-correcting tests and quizzes with automatic feedback. Often with options for grading and statistics.
- Common documents, and shared folders and/or functionality for projects and group tasks.
- Real-time chat.
- Blogs. On some platforms, they can be shared on the open network, but on others only internal publishing is supported.
- Voting/polls.
- Assignment submission (for files and folders or cloud based assignments) that facilitate feedback from tutor/supervisor, grading and statistics.
- Opportunities for self assessment and peer assessment of assignments, communication and tasks.

One of the advantages of using the platform is that both tutors’ and students’ online activity is collected in one place and archived. This means that the
student does not have to look for information, messages and learning material in many places. The platform has features for publishing and sending messages and information to everybody; to groups, to individual students and between tutors. It is also used to assess students’ work and their learning process and give them feedback that can also be revised later.

Uniformity is a quality criterion in itself. Just as you could enter an unfamiliar living room and expect to find the sofa and chairs facing a TV screen, there is a tradition of how content and activities are organised on a learning platform - often still modelled after the physical school. Nevertheless, much is left to the individual course writer and tutor, and so it is set for many variations. Tips on good structure were presented in the previous chapter. Many of the platforms are flexible and provide multiple choices for display and composition of items. Communication between the tutors and consistency in setup and use is necessary for the learning platform to be easy to navigate for everyone.

Learning platforms may be suitable for structuring the course content, dividing it into units and modules building upon each other, and creating a good progression. Teaching materials in different formats, tasks, collaborative work, discussion and reflection themes can then be assigned to the different cycles or groups.

Some platforms have tools to create controlled learning courses or learning pathways - so the student must follow a particular order. For example, they can be arranged so that the student cannot move on to the next level or cycle before they have completed the previous one. The pathway can also be programmed so that the various sections will not be available until a date set by the tutor or course writer.

Different platforms structure rights differently. On most systems, you can establish a forum with open communication between both tutors and students. In addition, they have features for private or closed communication. Grading on student work is an example of communication that should normally be limited to tutor and student individually. However, feedback from tutors and fellow students may, if desired, be available as a learning resource. As mentioned above, educational institutions often combine advanced software. They are set up with so-called ‘seamless integrations’ between them so that they are perceived as one by the users. The systems can include student administration and exam solutions, which are often administered by staff other than the tutors. Other examples are webinar tools, which are
discussed in more detail in Part 2, and plagiarism detection software. Plagiarism detection software scans student texts and searches the internet for similarities. In some cases, the software could also search the institution’s own databases, such as the learning platform, to compare student texts. This software is commonly used with written exams. Plagiarism detection software helps in assessing whether there is plagiarism in written texts, but it does not detect everything. Copy of texts in image format, copy of texts not published digitally, student texts in other databases and multimedia texts will not be captured by the automatic check. By using a wide range of assessment methods, as discussed in the next chapter, the need for digital plagiarism detection may be made less urgent.

**Good practice:**

- Provide students with clear expectations of activity on the learning platform from the start.
- Use the platform as the course’s formal arena, but do not be afraid to use external content and external tools. These can be linked from within the platform, thus giving all the students information about what is happening.
- The platform’s forums often cater for asynchronous discussions. This can be an advantage as students can write well-planned and processed posts, usually according to specific criteria.
- It may be useful to use plagiarism detection tools in collaboration with students. This is particularly the case if the program shows whether the text is located on several sites online, as this can provide opportunities for useful discussions about sources, origin and uncritical reproduction of information.
- Most platform providers offer courses. Educational institutions often offer courses as well. Thorough knowledge of what is available makes it easier to use the platform in a good way, and the tutor does not have to spend much time searching for options.
- Platform companies release their instructional videos (tutorials) on YouTube. In the same way, many educators who use the systems share their best tips on social media.
8: Assessment of learning – assessment for learning
Traditionally, assessment has largely been understood as a final evaluation, which means that a tutor or examiner assesses the student’s learning outcomes (for example through an exam). It is checking the knowledge achieved. The test culture dominated for an extended period, until we had a change of perspective where the idea of assessment for learning challenged the concept of assessment of learning. When assessing learning, knowledge is understood as an individual property and an expression of goal achievement, and thus shows the level of knowledge the individual has achieved. This is largely based on a cognitive understanding of knowledge. Assessment for learning is based more and more on the understanding that knowledge is something that is being developed jointly and something that occurs in interaction between, for example, tutor and student or between students. Assessment for learning is assessment that supports student learning. Nancy Falchikov says that assessment supports learning if the purpose is to identify areas and potential for improvement.

Norway implemented a quality reform in higher education in 2003, and this has contributed to greater attention to the connection between learning outcomes, learning activities and assessment.

A key objective of the quality reform was to enhance student guidance. The focus of assessment moved from mainly controlling learning to supporting learning as well.

Today, it is widely agreed that assessment in the context of education has three main purposes:
1. To promote learning: formative or continuous assessment.
2. To inform and certify for further education and work: summative or final assessment.
3. Providing information to different levels in the system (institution) as the basis for quality development and management: evaluation or quality assessment.

This guide is mainly about tuition, so there is no separate section about the institution’s systematic quality assurance. The ongoing assessment of student learning, however, can provide a great deal of information to the tutor and the

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32. Falichov, Nancy (2005) Improving assessment through student involvement: practical solutions for aiding learning in higher and further education, RoutledgeFalmer
institution about what works well.

**Assessment and feedback**

Assessment to promote learning, or formative assessment is closely aligned with learning activities; and feedback and guidance in connection with student work. The aim and purpose is to make students become more aware of their own learning process and take greater ownership of and responsibility for it. We can say that planning for formative assessment is the same as planning learning activities.

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**Illustration 5: Learning activities in constructive alignment: an example of assessment, communication and feedback**

Formative assessment is an assessment that supports the students’ learning processes. John Hattie and Helen Timperley call this *feedback* and divide it into three key principles:\(^{33}\)

1. **Feed up**: a clarification of the goal. Students must be given knowledge of what the goal is and what is expected of them.
2. **Feed back**: feedback on how the student stands in relation to the goal, or what the student has achieved so far.
3. **Feed forward**: Information about what the student needs to do to achieve the goal.

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There is considerable international research referring to the crucial benefit feedback can have for student learning.³⁴ When we talk about formative assessment, we often think about student learning processes and that this is something that happens between student and teacher. When considering digital assessment in a learning process, this involves both submitting and developing assignments digitally.³⁵ Digital assessment may be fully or partly digitised. Irrespective of the form we choose, it is important to look at assessment as an integral part of the teaching and learning process; and early in the planning process ask questions about where in the student learning path to use formative assessment and why.

**Assessment as a learning activity**

A student-active form of formative assessment is peer assessment (or fellow student assessment). Peer assessment can be both formal and informal. Students can evaluate one another’s completed work or give input into drafts. The assessment can be done in writing or verbally, for example in the form of discussion, individually or in groups.

When students evaluate one another’s work or assignments, it is important that they know what to look for so that their feedback can be constructive. It goes without saying that students do not immediately understand how to give feedback to each other. They need criteria and they need training. It can be effective to give the students examples of how work has been previously assessed, preferably with a discussion of how the criteria have been applied.

Another form of formative assessment is self assessment (or self reflection). Here the students assess their own work. Self assessment can be used both at the beginning of a semester to gain understanding of the students, clarify expectations and build trust between teacher and student, and all the way through the course to make the students more aware of what and how they learn. If this self assessment is then shared with fellow students and/or teachers, it may be a useful starting point for further learning.


Formative assessment as evaluation of tuition

Formative assessment is also useful for supporting the tutor’s own learning processes, for example, by getting feedback on their own tuition. The feedback is used to adjust the instruction along the way. Examples of feedback on tuition that may also be part of the self assessment work:

- A simple poll that shows the students’ pre-understanding/level of knowledge.
- Specific questions to the students about specific pages of the tuition.
- Feedback group made up of a selection of students who meet online once or twice during the term to provide feedback on tuition - structure and content, learning outcomes related to specific learning activities and resources.
- ‘The muddiest point’: the tutor asks the students individually or together with a fellow student to write and submit information about what part of the topic/session is still not clear to them.

These examples all have the potential to promote student learning because they add to student activity, interaction and reflection. Students must apply, analyse, evaluate, create and reflect as part of the learning process. In addition, they will evaluate the work of others and make their own work available to others for feedback and review. In these situations, it is natural for students to feel vulnerable because they have to expose themselves to possible criticism. David Carless emphasises the importance of trust in assessment situations. Building trust and good relationships between tutors and students is important because it creates a feeling of comfort and affects students’ involvement in the learning process, he says. Without trust and confidence, there is a risk that students merely retrieve information and are unwilling to participate and to share.

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Good practice:

- Formative assessment can be an open process if the students are comfortable with it. Using blogs in peer review emphasises the ownership of the text in a unique way, while providing the basis for more people to be included in the feedback task.
- Many students also reflect on their own learning in their blog.
- Digital narratives\(^{38}\) are a method of reflection and learning. They can be independent, which creates an ownership and a meta perspective on students' own competence and knowledge level, while activating previous experience, knowledge and competence.
- It can be useful to let students summarise the most important points after each learning session. In a webinar, it can be done in the test, poll, or chat. In asynchronous learning, questions and answers, forum posts, Twitter or learning blogs are good tools.

Assessment of learning - summative assessment

Assessment of learning, summative or final assessment, has as its main purpose to inform and certify for further education and work.

Summative assessment has a strong impact on students' learning strategies, working methods and priorities. For example, Biggs and Tang\(^{39}\) emphasise how summative assessment has an impact on the student's learning behaviour. Students will choose learning behaviour or strategies in the early stages of the course according to the type of assessment or exam that has been set for that course or study unit.

This implies that when we are planning for students to achieve the learning outcomes, it is essential to choose assessment methods that reveal whether the student has achieved the learning outcomes described for that course or study unit. If the learning outcome states that the candidate 'can communicate verbally and in writing' about the subject field, but the course does not have any forms of assessment other than a written exam, there is a great risk that the student does not prioritise practising oral presentation or dialogue. If the learning outcomes are to be in-depth knowledge that the student can 'analyse critically, process and apply in new areas in an ethical manner', this will require different forms of assessment than if the

\(^{38}\) To present a work or learning process in narrative form using various digital tools

student needs to be ‘familiar with research and development work in the field’ \(^{40}\). Biggs and Tang indicate that students and tutors have different perspectives on assessment. The figure below illustrates this and also implicitly shows the impact of the assessment on the students’ learning process and strategy:

Illustration 6: Teacher’s and student’s perspectives on assessment, Biggs & Tang, page 169

This model demonstrates that it is important to plan for forms of assessment as an integral part of a study and learning process. When early planning focuses on the relationship between learning outcomes, tuition and assessment, one can choose and develop assessment methods and plan learning activities that support the students’ learning in a good way.

The ‘written school exam’ has a strong position, particularly in higher education, as the summative and final assessment. Just because it is so dominant, it has been criticised as insufficiently assessing whether the student has achieved the intended learning outcomes. Many educational institutions are now using digital tools in the exam and assessment, but the school exam still seems to dominate. Critics therefore argue that the only change is from pen and paper to keyboard and screen.

Educational institutions have become more inclined to develop other forms of assessment, all of which are more suitable for assessing achievement of the intended learning outcomes and stimulating learning. The Norwegian professor Arild Raaheim has written a book about ‘The Exam revolution’\(^{41}\) and there, among other things, produced an overview of dozens of forms of assessment that are alternatives to closed school examinations. Examples of such forms of assessment are: ‘the student is an examiner’ (giving the students

\(^{40}\) Examples from the Norwegian Qualifications Framework of Lifelong Learning (NQF)

\(^{41}\) Raaheim, A. (2016) Eksamensrevolusjonen. Råd og tips om eksamen og alternative vurderingsformer. Gyldendal Norsk Forlag. Only in Norwegian, but the list can be found in appendix A of the Report from the Working Group for Digital Education and Assessment at the Faculty og Mathematics and Natural Sciences, University of Bergen.
a completed examination answer that they must assess); ‘assignment activities’ (based on real life assignments, and where the project owner participates in the assessment work); ‘planning tuition’ (requires thorough knowledge of subjects or subjects) and ‘open exam’ (a digital exam with access to all kinds of sources, where the computer works as more than a typewriter). The idea is not to vary only to be creative, but to ask ‘How can we demonstrate the achieved learning outcomes?’

In all assessment work, it is important to have clear and unambiguous criteria. Engaging the students in the preparation of the assessment criteria helps them to take stronger ownership and gain a deeper understanding of the subject, the learning outcomes, and what to assess and why. In addition, the tutor receives important input about the students’ understanding, progression and learning outcomes. This assessment competence is a general competence that the students build based on their experience with varied assessment practices during a course of education.

**Portfolio assessment** is a method in which both formative and summative assessments are included. The pedagogical argument for portfolios is that the method contributes to deeper learning through increased interaction between student and tutor, and among the students over time, often over a full course period. In portfolio assessment, feedback is used formatively, i.e. to support students’ learning. The method combines tuition and different forms of assessment, and in turn causes portfolio assessment to have consequences for teaching practices. More or less all assessment methods can be included in a portfolio. A key point is that the student receives feedback on their work continuously, and can improve their output, while the portfolio as a whole or a selection of it is the basis for a summative assessment. The grade on the portfolio may constitute all or part of the final grade. The student receives feedback from tutor and fellow students, and will in turn, give feedback to their peers and assess themselves, for example in the form of a reflection note. The work in the portfolio can be in very different formats and be available in many different media - oral presentation, role playing or work practice recorded on video, audio files with, for example, an interview, a PowerPoint presentation, tests or learning games made by the student themselves or in groups are some examples.⁴²

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To consider when planning for portfolio assessment:\(^{43}\)

- What the portfolio should contain and what should be included as basis for summative assessment.
- The nature and extent of the individual work.
- How process and progression should be included in the assessment basis for the portfolio as a whole.
- Chronological order of submission of the individual work, optionally letting the student choose the order.
- The form and extent of the guidance.
- Submission deadlines for each assignment (if applicable).
- How the work is to be submitted/performed, including optional or mandatory assignments submitted as a group task.
- The selection process if only a showcase portfolio is to be submitted for final assessment.
- The criteria that apply to the assessment of the work that is included in the assessment basis, and to the portfolio as a whole.

\(^{43}\) From the Degree and Study Regulation of the University of Bergen (2016)
Part 2: Specializations and examples
I. Examples of digital tools used in education
In this chapter, we present a selection of digital tools used in teaching and learning, and because we want this to be a practical guide, we have chosen to be specific in our examples. This means, among other things, the use of brand names - with the risk that something will be outdated during the life cycle of the guide. In order to further exemplify, a selection of learning outcome descriptors from the NQF is embedded. The examples are from level 6 (bachelor).

Forum (for asynchronous discussion)
A forum is often used when students need to develop knowledge through sharing experiences and perceptions of subject material, and increase understanding through discussing subject material and getting feedback on their own perceptions. It is also for analysing and solving complex problems in collaboration with others, and reflecting on varying matters, as well as assessing themselves and others.

Examples from the NQF’s Learning Outcome Descriptors: The candidate ...
... can exchange opinions with others with a background in the field and participate in discussions concerning the development of good practice ...
... can reflect on his/her own academic practice and adjust it under supervision ...
... can apply academic knowledge to practical and theoretical problems and explain his/her choices ...
... has knowledge of important topics, theories, problems, processes, tools and methods in the subject area

Characteristics of forums (asynchronous discussion tools):
- Used for asynchronous communication.
- Can consist of a main entry with multiple responses or comments or a set of comments about one topic.
- Often found on the learning platform or course platform.
- The author of a post or comment is identified in each contribution.
- There are different types: questions and answers, posts with comments, discussion, brainstorming, role play, feedback, and collaborative threads are some examples.
- Examples of such discussions taking place outside of organised education, are newspaper articles and blogs with comments, twitter messages that follow the same hashtags or threads in Facebook or one of the many different online forums.

44 The Norwegian Qualifications Framework is compatible with European equivalent, but the verbs in the descriptors are relevant for all levels.
In some discussions, we want the students to contribute at the same level. *Brainstorming* could be an example. This is usually an unstructured forum type that can be used to share knowledge and ideas or to map the student group’s level of knowledge before introducing a new topic or at the start of a project. *Debate* is another example of a discussion where everyone takes part. In a written, asynchronous debate, you have more time to interpret others’ posts and formulate your own.

A widely used form is *commented posts*: a student writes a post, and fellow students comment on it. This is done, for example, in peer assessment and group assignments, where the student’s post is the main product and fellow students’ comments will help improve it. This form is also used for reflections.

In a student support forum, students can ask questions and receive answers from both the tutor and fellow students. These forums can be topic specific or open for several topics in the course.

**Examples of forum channels:**

Learning platforms can have many forum types, and options to create forums for smaller, open or closed groups - for debate, questions and answers and brainstorming. The blog form is suitable for posts with comments. Examples of external tools are Wordpress or Blogger. Twitter can be used for everything from debate and posts with answers (reply function) to ideas and questions and answers (hashtag function). Online tools for creating mind maps like Cacoo can also be used for the exchange of ideas. Facebook can be used occasionally for questions and answers, usually in closed mode for each student group or course group.
Good practice:

- Participation in discussions and cooperation may be voluntary or mandatory. It is recommended expectations are made clear to students as early as possible, preferably in the course description.
- The use of forums should be closely linked to the rest of the course structure. A forum should be specifically created for its purpose and adapted to the expected number of users. It should be clear how students are expected to contribute and behave.
- If there are several types of forum, expectations must be clarified for each of them.
- In a forum, participants can link to external resources. Students should be expected to explain/annotate references to avoid a collection of resources with no or little relevance.
- The role of moderator can be carried by the students. The role should be described clearly to give them confidence.
- In courses with a fluid start date and free progression, it takes a great deal more to keep the discussion going. The tutor can be very active in the role as facilitator and moderator. Bringing together students from several disciplines in the same forum to discuss common topics and subjects may also stimulate the discussion.
- Discussions can be moved to open social media to draw in even more views if students are motivated to do so.
- Even when students are active in the discussion forums, providing sound information and informed views, it is usually an advantage if the tutor is also present with encouragement, confirmation and summaries.
- Some forums can be set so that students must write before they can see someone else’s contribution, or so that contributions are hidden until a certain date. This can be used to ensure that everyone gets to voice their own opinions and does not just piggyback on others.
- The more active students are, and the more posts in the forum, the more important it is to provide frequent summaries.
- Posts in a forum where students can ask questions when they are stuck should be answered promptly, otherwise it is better to use email/SMS. The advantage of forums is that the other students can read the same answers, and the answers can even be archived and reused. Another advantage is that sometimes students help each other out.
- Many forums - inside and outside learning platforms - have options for voice/video. This allows for more variety and nuances in the discussions.
- Forum posts may be the basis for formal assessment.
Collaborative writing

Collaborative tools are often used when students need to build common knowledge through gathering relevant information, apply academic knowledge to, for example, collaborative presentations or articles, assess others’ and their own contributions in the course context, and develop new plans, overviews, methods or products.

Examples from the NQF’s Learning Outcome Descriptors: The candidate … 
… has broad knowledge of important topics, theories, issues, processes, tools and methods within the academic field
… can find, evaluate and refer to information and scholarly subject matter and present it in a manner that sheds light on the problem

Characteristics of tools for collaborate writing:
- Used in both synchronous and asynchronous communication.
- Can have one owner with options for others to comment, or collective ownership.
- Can be created by tutor, or the academically responsible, or by the students themselves.
- Can sit within or outside the learning platform.
- Storage is often cloud-based.

Collaborative writing tools are often used for group assignments and projects. They are characterised by the fact that they are usually owned by a certain group of people who have equal access rights, although different levels of access can be set. Documents are updated in real time and have different forms of version management and identity markers (colours or names). There is often a conversation feature (chat) as well.

Where knowledge is to be gathered collaboratively and over time, and where a large number of users will have ownership of the document, a wiki may be particularly useful. A wiki is a collection of pages that link through hyperlinks in the text. A characteristic of wikis is that anyone can edit anything, and the text becomes a collaborative product where the log shows who wrote or edited what.

Examples of tools for collaborative writing:
Google+ is free, but requires us to create an account. It has many possibilities for creating, sharing and managing documents in a group. Similarly, Microsoft Office
has online access documents, and with Office 365 the Class Notebook is used for co-writing, chatting, collecting and sharing resources. Etherpad is a free and simple co-writing tool, but installing it can be a little challenging. Some learning platforms also have collaborative writing tools. Online presentation tools, such as Prezi, can be edited by multiple participants. For wikis, we distinguish between the software itself, such as Wikimedia, and complete services, such as Wikia, where anyone can create wikis by signing up.

**Good practice:**

- When assigning group tasks, it can be a good idea to divide the students into groups in advance, especially in pure online studies.
- Students need both academic and other guidance or rules for participation in group work and other activities.
- Students can work independently with the co-writing tools to present a final result, or the tutor may have access to provide guidance and feedback.
- At the earlier stages of the course, students often need very concrete and accurate task descriptions.
- Many students hesitate to edit fellow students’ texts, even in joint documents. The comment function or chat can be a good alternative to editing.
- Let the wiki/group documents become part of the subject’s academic content. It may be a motivating factor, and the students benefit from each other’s expertise and experience.

**Tools for content sharing, collaboration and projects**

Students use these tools to **build knowledge** together, they **apply** knowledge and experience to **analyse** and **solve** complex tasks. They **assess** themselves and each other in the project. In project work, students will develop their own answers to existing questions.

**Examples from the NQF’s Learning Outcome Descriptors:** The candidate ... ... can **plan** and **carry out** varied assignments and projects over time, alone or as part of a group, and in accordance with ethical requirements and principles ... can **find**, **assess** and **refer** to information and academic material and relate it to an issue
Characteristics of tools for content sharing, collaboration and projects:

- Used in student-driven activities in a group.
- Suitable for project-based tuition.
- Can also be used as an interactive part of tutor-led tuition.
- Content sharing tools can be simple, cloud-based folders where files are uploaded, or they can be websites where content is linked or published with annotations.
- Access to a content sharing tool may be open or private to the group.
- With project tools, you can collect resources, assign tasks, and organise timelines.

In traditional tuition, it is the academically responsible tutor or course writer who produces and selects relevant learning materials, i.e., the curriculum. With a more social-constructivist approach to tuition, the tutor acts more as a supervisor or guide, and the students themselves will find, evaluate, share and discuss the academic material. There are a number of tools for collecting, sharing and discussing the material and learning resources.

These tools are also used in problem-based learning, where the group works with complex cases and in project work that will result in a product or solution. Sometimes, the project’s final solution or product is implemented at the students’ own workplace or for a customer.

Examples of tools for sharing and collaboration:

Trello is a simple and free project planning tool, which enables you to submit tasks with resources and descriptions, as well as the people responsible for them. Dropbox is a cloud-based folder for files which many people can access. With a Google+ account, students can create their own groups with file sharing, document sharing, notifications, and chat. Cacoo is a map and flow chart tool that can have multiple editors in real-time. Scoopit is a curator tool with annotation options and the basic features are free. With the Office 365 teams feature, students have access to a hub for the sharing of material, a calendar, tasks and communication.
Good practice:

- The students are in charge of managing their own project, but the tutor may help by assessing, guiding and giving advice. This role should be clarified and agreed upon in advance.
- Be prepared for the students to have little or no experience with such forms of work. In this case they will need training, guidance and encouragement, especially if the work is mandatory.
- By challenging students to create abstracts, summaries or justifications for external resources they share with the community, we can help them think for themselves and not only become collectors of external content.
- With today’s web2.0 solutions, students can collaborate with people outside the class or group. Particularly in continuing education, it will be natural for students to bring in their personal and professional networks.

Webinar tools

Like a real-time virtual classroom or auditorium, a webinar can be a lot like traditional tuition or lecturing. Students can acquire theoretical knowledge and interact with the tutor and each other to gain a deeper understanding of the content. Webinars can be used to analyse and discuss issues and develop new viewpoints.

Examples from the NQF’s Learning Outcome Descriptors: The candidate ...
... can exchange opinions and experiences with others with a background in the field, thereby contributing to the development of good practice ...
... can present important academic content such as theories, problems and solutions, both in writing and orally, as well as using other relevant forms of communication ...
... has knowledge of the history, traditions, distinctive character and place in society of the academic field ...
... has knowledge of important topics, theories, problems, processes, tools and methods in the subject area

Characteristics of webinar tools:
- Tools for synchronous tuition and interaction.
- Closed areas that require special access or invitation to join.
- Typical features include note board, screen sharing, chat, two-way video communications, two-way auditive communication, emojis/symbols and polls.
• The more advanced platforms usually have break out rooms for group work.
• Often there are big differences between free and paid-for solutions.

These classrooms differ from the other tools mentioned here by virtue of being synchronous. They are well suited for lectures and presentations and are also used extensively for group work. Unlike physical spaces, they are highly scalable, and we can activate different functions for different types of web meetings and the number of participants. A classic session with presentation and subsequent discussion and questions and answers is usually called a webinar. Small group sessions are often called video conferencing, as all users can be on video and audio at the same time.

Examples of webinar platforms and tools:
Many higher education institutions today use advanced webinar platforms like Adobe Connect, Skype for Business or Blackboard Collaborate for which they pay. Free versions like Skype and Google Hangout have limitations on the number of participants and have fewer features. They are therefore better suited for group meetings than for webinars.
Good practice:

- Prepare thoroughly, both professionally and technically. If something fails, you don’t have many tools available. On the plus side, you can use a script without anyone knowing it.
- Appear in the webinar early to test the sound and picture. That way, students can come early and do the same.
- Try to find a room with even, soft lighting and good noise reduction. Headsets are recommended for all participants.
- Send the agenda, motivation video (teaser) and information about recommended literature in advance. Students should be as well prepared for a webinar as for a similar session in a physical classroom.
- Good webinar performance requires practice - how to look into the camera, keep the cursor steady, keep an even volume, but varied pace, and keep an eye on participants while presenting. Much of this can be practised by using a recording feature, such as a camera on the computer, and studying the results.
- In webinars with a large number of participants, it is better to divide the hosting tasks so that one person is the presenter and the other manages the chat and support.
- Make room for at least as many breaks of the same length as you would in a physical lecture/meeting.
- In smaller group meetings, everyone can use a microphone, but enforce a rule of turning it off when not speaking.
- Give the students a lecture on video (either self-made or from other professionals online), reading material, or other resources before the webinar, and use the webinar for discussion, task solving, questions and other necessary communication.
- Use webinars for presentation of group work. It is easy to share a screen, but it may be useful if files to be displayed (such as PowerPoints) are uploaded in advance.
- If the form of the course allows for synchronous activities for everyone, the webinar platform can be a great place to build a learning environment and sense of social affiliation. You can even do some informal communication exercises, such as letting the students present a silly riddle that the others will guess.
- In most platforms one can create ad hoc group rooms (breakout rooms). Let students talk to each other in three-minute sessions in small groups to make them more active and break up a longer webinar.
Video and audio material
Students often watch video lectures and instructional videos to gain knowledge or as the basis for acquiring skills in the subject field. Videos are also used to present examples, cases, and questions that students will analyse, assess and formulate answers or solutions to. Students themselves make videos to present how they understand and apply knowledge.

Examples from the NQF’s Learning Outcome Descriptors: The candidate ...
... can communicate important academic subject matters such as theories, problems and solutions, both in writing and orally, as well as through other relevant forms of communication
... has insight into relevant academic and professional ethical issues
... is familiar with the subject area’s history, traditions, distinctive nature and place in society
... has knowledge of important topics, theories, problems, processes, tools and methods in the subject area

Characteristics of videos and audio files:
- Asynchronous one-way communication (monologue/lecture).
- Can be published within the learning platform or in a public platform.
- Independent learning resource: lecture, demonstration/instruction.
- Used as part of lecture: introduction/motivation video (teaser), revision of learning session, case for discussion.
- Used as part of other assignments: starting point for discussion, student evaluation/peer review feedback.
- Mobile friendly.

Existing videos and movies can be linked to/downloaded and used in the learning context, but they can also be produced and tailored for the course. Teachers and students can easily make videos themselves, but bigger educational institutions often have people who assist with video productions.

When using video to repeat key points, present concepts or topics, either as a summary or explanation, it is sometimes called a talking head video because it often only shows the tutor’s face. Videos can be easily recorded with your mobile camera, PC’s integrated camera or screen capture feature.

An instructional video shows how to perform a calculation, a coding assignment,
a laboratory exercise or other tasks. An important advantage is that the student can stop recording and rewind while completing the task. Sometimes this is used to demonstrate situations and exercises students can’t easily do themselves. These videos are also called *demonstrations*. Some instructional videos are recorded via interactive boards. If the videos have a wide range, it is worth using extra resources to get good quality. In methods such as case-teaching, role-playing and problem-based learning, video is often used to present an open-ended case with a question. Such *reflection videos* can be the basis for collaboration or individual reflection.

All these types of video may be published on the learning platform or on open platforms such as YouTube, Vimeo and Facebook. There are often good talks, demonstrations and cases freely accessible on the web.

A *motivation video* (teaser) can be a short video like ‘This happens in the lecture tomorrow’ as well as a question or problem to ponder. This could be a mini version of a talking head video or consist of a few simple pages of image and/or text, and it is ideal to send to the students’ smartphones if you have access to that feature. Open platforms with notifications, like Twitter and Facebook, can also be used. Video is also used to provide feedback on students’ tasks and assignments. These are recorded in the same way as other videos, but are rarely published outside the learning platform.

A series of audio recordings, often a series of lectures, can be published as podcasts. With podcasts, files are made available for download on students’ devices and distributed through a publishing channel (like a blog service), and the students can then subscribe via an RSS service (subscription service). Podcasting is slightly more complicated because it requires tools for recording, file storage in the right format, file publishing and RSS.

**Examples of simple video publishing platforms:**
YouTube, TeacherTube, Vimeo. Videos can also be published via other social media such as Facebook and Twitter, as well as on the learning platform. The different platforms have different advantages, for example, allowing the viewer to control the video playback.

**Examples of tools for capturing and editing videos:**
For recording and editing, many tutors use Camtasia. Screencast-O-Matic is a free service that gives you easy screen capture with audio and publishing.
Apple users have access to iMovie. Examples of other professional tools are Final Cut, Adobe Premiere Pro or Media Composer. Webinars are recorded with the platform’s built-in recording feature.

**Good practice:**

- If the video or audio file is to be used outside of your context, especially if it is to be used commercially, or if it is the main learning resource in the course and/or it needs to be reusable, some effort should be made to produce a good product. But for internal use, the threshold should be as low as for writing a summary for the class.
- Keep the videos as short as possible. Some claim that the maximum length of time to hold attention is six minutes, but this depends on a number of factors.
- Write a script in advance. Schedule the order of pictures, pages, etc. With good planning, we can often take everything in one shot.
- Onscreen recording: make sure the cursor does not wander aimlessly around the screen, or rotate. Be aware of sounds from the keyboard, and turn off notifications and text that may appear in the picture and detract from your message.
- A simple video clip of just the teacher’s head speaking can help create a personal relationship with the students. This applies to both mixed and fully online programmes.
- An introduction, presentation or instruction should be pointed and thought through.
- Recording of a lecture or recording of the interactive board in the classroom can often be useful even without editing because the students have participated in the process and can forward to the points they want to repeat.
- Be aware of copyright when using other people’s material, be it images, quotes or anything else.
- Let the students make videos as a learning activity. If you wish to re-use your student videos at a later time, you will need their permission.
- Think about what kind of device the students are likely to watch the movie. Small snippets to fit the phone’s small screen should have few and clear visual points and focus on the spoken message for nuances. Calculations, algorithms and videos detailed content are best suited to large screens. The publishing method can make a difference; there is a greater chance that students will open a learning platform from their PC, while social media will more often be read on a smartphone.
- Many learning platforms have direct audio recording. Use it to record oral feedback on student work.
Micro learning
Micro learning lessons are also called nano learning or nano lessons and are used by students to gain knowledge and facts and test these to make sure they have understood. Lessons can also present cases and problems for analysis and reflection. Students can also apply academic knowledge to create their own micro lessons.

Examples from the NQF’s Learning Outcome Descriptors: The candidate ...
... has knowledge of important topics, theories, problems, processes, tools and methods in the subject area

Characteristics of micro lessons:
- Mobile screen friendly.
- Often video format.
- Keyword summary of topics.
- Suitable for multimedia and interactivity.

In these tools, topics are divided into small lessons that the learner ideally should be able to complete anywhere, at any time and for a maximum of ten minutes. Lessons are usually available via mobile devices, and can be published/sent to the students on a regular basis, or can be accessed by students when they need them (on demand learning).
Micro lessons are suitable for preparing students before a lecture or group assignment, to introduce new topics/modules for teaching new words and concepts.

Examples of micro learning tools:
mYouTime is a micro learning app with a so-called ‘push alert function’ and is typically purchased for the entire institution. It has a fixed layout with an introduction page, three content pages and a short quiz at the end. Alternatively, you can use well-established free platforms like Twitter, Facebook, and Instagram, all of which can be installed with a notification feature on the students’ smartphones. If links to external content are a part of the lecture, it is important to make sure that they too are suitable for a small screen.
Good practice:

- Make it visually simple; remember that the lesson should be readable on a small screen.
- Timing (the right resource at the right time) is an important consideration. For example, a revising lesson can be sent just before a test or immediately after the lecture, while a small case can be sent in the morning to motivate students for the day’s effort.
- Create a micro lesson in Prezi. Between content bubbles, add questions or problems for the students to ponder.
- SMS can also be used for micro learning. It needs to be very ‘to the point’, but it is possible to add links to extra learning material.

Quizzes, learning games and tests
Students use tests and quizzes to assess their own understanding of their knowledge and to gain new knowledge. The assignments can be simple repetitions of facts or created in ways that make students analyse more complex issues and apply knowledge in new ways to solve the tasks. There are also games and tasks with ethical and/or professional evaluations at a high level.

Examples from the NQF’s Learning Outcome Descriptors: The candidate ...
... has insight into relevant academic and professional ethical issues
... has broad knowledge of important topics, theories, issues, processes, tools and methods within the academic field
... can reflect upon his/her own academic practice and adjust it under supervision

Characteristics of quizzes, learning games and tests:

- Students receive immediate feedback.
- Can be based on collaboration or individual effort.
- Good achievements are often rewarded with symbolic benefits (points, badges, tokens).

Examples of tools for making tests and quizzes:
Most people use the features in their learning platforms. It has the advantage of all student results being gathered in one place, and there are usually more settings in the professional LMS than in the simpler open and free programs.
Kahoot is a very popular Norwegian quiz tool, suitable for synchronous activities. It is widely used in classroom-based teaching, but is equally useful in the webinar context. Socrative is a similar service with multiple formats. With more attention to content production, and especially asynchronous use, one can go for commercial products like iSpring. The students’ results can be stored in various formats that can normally be used on the learning platform.⁴⁵ More extensive game universes can be SIM City and MineCraft. There are also a number of learning games at different levels, but we consider these content, and therefore rather outside the scope of a list of tools.

**Good practice:**

- Let the students make their own questions and answers to process the subject matter.
- Keep the attention in the webinar with one-word tests or a simple polling. You can for example use the symbols in the platform.
- One of the benefits of digital tests and questionnaires is the option to add multimedia, like small video clips.
- Turn the testing idea upside down and give the test at the start of a new topic. Then the students themselves must seek out the knowledge they need, instead of getting it presented by the tutor. Automatic correction can give them a hint as to whether they are on the right track or not.
- If the test has a function where you can add a short text to pop up immediately after the student has submitted an answer, use it to add hints and let the students take the test over and over until they understand the content.

⁴⁵ Standards like SCORM will make it possible for tests created with one software to open and play in another software, keeping results and user identity.
II. Learning Outcomes -specialization chapter

The student’s acquired knowledge, skills and competence must always be the starting point and the aim of the course. The Norwegian Qualification Framework for Lifelong Learning (NQF) has been developed in Norway, based, among other things, on the corresponding European Qualifications Frameworks and European collaboration aimed at promoting quality in education and mobility between countries, and facilitating lifelong learning.

The introduction to the NQF says:

‘The goal is that the learning outcomes for the individual qualifications will be described in a way that makes it easy to see the interconnection between them, and thereby also the actual differences in learning outcomes between the different levels and pathways through the education system.’ (NQF page 5)

The general learning outcomes descriptors are sorted into three categories: knowledge, skills and (general) competence. In the matrix below, we have selected an example from each of the three categories as presented in the NQF, and from four levels of education in the Norwegian education system. The purpose is to demonstrate how the complexity of the different learning outcomes increases with each level.

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| **Level 5: Tertiary vocational training 1**  
*The candidate ...* | **Level 5: Tertiary vocational training 2**  
*The candidate ...* | **Level 6: Bachelor (1. cycle)**  
*The candidate ...* | **Level 7: Master (2. cycle)**  
*The candidate ...* |
|---|---|---|---|
| **Knowledge**  
- has knowledge of concepts, theories, models, processes and tools that are used in a specialised field of work | - has knowledge of concepts, theories, models, processes and tools that are used in a specialised field of work | - has broad knowledge of important topics, theories, issues, processes, tools and methods within the academic field | - has advanced knowledge within the academic field and specialized insight in a limited area |
| **Skills**  
- can find information and material that is relevant to a vocational problem | - can find and refer to information and vocational material and assess its relevance to a vocational issue | - can find, evaluate and refer to information and scholarly subject matter and present it in a manner that sheds light on the problem | - can analyse and deal critically with various sources of information and use them to structure and formulate scholarly arguments |
| **(General) competence**  
- understands the ethical principles that apply in the trade/ field of work  
- has developed an ethical attitude in relation to the practising of his/ her discipline | - can plan and carry out vocational tasks and projects alone or as part of a group and in accordance with ethical requirements and principles | - can plan and carry out varied assignments and projects over time, alone or as part of a group, and in accordance with ethical requirements and principles | - can apply his/ her knowledge and skills in new areas in order to carry out advanced assignments and projects |

The choice of verbs in each learning outcome descriptor is important. The verb describes both the content of what the student should know and be able to do, and how complex the learning outcome should be. Vocational education in the NQF is at level 5, while bachelor and master programmes are at levels 6 and 7 respectively. The NQF gives general descriptors for learning outcomes on all of these overall levels (programmes). The learning outcomes for the subjects and modules within the educational programmes should be derived from and adapted to the descriptors at the programme level.

*The Regulation for Supervision of Quality in Higher Education in Norway* states that the following conditions must be consistent with and adapted to the
learning outcomes descriptors so that the learning outcomes are achieved:

- The content and structure of the study programme
- Learning and teaching methods
- Exams and other assessment methods

It must also be planned for the relationship between these factors to be as good as possible. The European Association of Distance Teaching Universities (EADTU) has issued a manual for institutional benchmarking of quality. On the documentation of the connection between learning outcomes, learning activities and assessment, it says:

‘Each course should include a clear statement of the learning outcomes to be achieved on successful completion. (...) The development of each course should include a clearly documented course specification which sets out the relationship between learning outcomes, learning activities and assessment. (...)’ (Page 64.)

**Taxonomies**

When writing learning outcomes, educational taxonomies can be of considerable help. These taxonomies are classification systems ranging from the learning of facts to the development of independent assessment and reflection. The different scientific disciplines have their specific taxonomies.

In this guide, we refer to Benjamin Bloom’s taxonomy. It is the most widely used taxonomy in our part of the world, but it has its limitations. It only covers the cognitive qualifications, while we may of course wish to include and develop skills in several other areas. For the psychomotor domain and the affective domain, we refer to Elizabeth J. Simpson and David R. Krathwohl, respectively.

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Illustration 7: Benjamin Bloom’s taxonomy

On each level a collection of verbs are used when describing what the student knows and is able to do after completion of the course. Some verbs repeat themselves from level to level, and the context in which they are used determine the complexity and the level of the NQF they reflect. Some examples.⁴⁹

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>appraise, argue, assess, attach, choose, compare, defend, estimate, judge, predict, rate, select, support, value, evaluate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synthesis</td>
<td>arrange, assemble, collect, compose, construct, create, design, develop, formulate, manage, organize, plan, prepare, propose, set up, write.</td>
</tr>
<tr>
<td>Analysis</td>
<td>analyse, appraise, calculate, categorise, compare, contrast, criticise, differentiate, discriminate, distinguish, examine, experiment, question, test</td>
</tr>
<tr>
<td>Application</td>
<td>apply, choose, demonstrate, dramatise, employ, illustrate, interpret, operate, practise, schedule, sketch, solve, use, write</td>
</tr>
<tr>
<td>Comprehension</td>
<td>classify, describe, discuss, explain, express, identify, indicate, locate, recognise, report, restate, review, select, translate.</td>
</tr>
<tr>
<td>Knowledge</td>
<td>arrange, define, duplicate, label, list, memorise, name, order, recognise, relate, recall, repeat, reproduce, state.</td>
</tr>
</tbody>
</table>

III: User friendly design and accessibility

Although most educators and course writers use pre-set templates and systems such as a learning platform or blog platform, they will have to make several choices on how to structure and present academic material and assignments and facilitate communication within the boundaries of these templates. It may therefore be a good idea to remember that the student group can have very different requirements regarding vision, hearing and movement as well as different literacy skills, ability to concentrate, language skills and digital competence. Below we present some tips and good practice for online courses, especially intended for teachers and course writers who work within the platform’s user interface, and so do not write code themselves. The advice is by no means a comprehensive recipe for how to achieve public accessibility. More information can be found at https://www.w3.org/.⁵⁰ Fortunately, the principles of universal design⁵¹ are often the same as for what we like to refer to as ‘good design’, such as principles of readability, clarity and simplicity.

Impaired vision, hearing, movement?
Some students may have minor physical challenges that can be worked around while others rely on aids and special arrangements. In addition, many of us have short-term challenges such as misplacing our reading glasses, strong sunshine, a lot of noise or injury to the hands or arms.

⁵¹ Universal design means that the solution should be accessible for everyone in the target group, regardless of capabilities and physical prerequisites
Good practice:

- Font size can often be regulated on the student’s own device, but not for writing published in image formats.
- Visually impaired students need a good contrast between foreground (text and graphics) and background. Dark text on light background is often good.
- Links in text are often highlighted in colour, but students who are colour blind and have poor sight need other types of markings. You can for example write: "This is the link to FuN’s quality standards", so that the underlining and verbal message add to the colour marker.
- Graphs and charts can cause problems if the colour is the only thing separating the different figures. Additional descriptions in numbers helps.
- A screen reader is a program that reads the page out loud for the user, thus turning visual communication into audial. It reads behind the visible user interface and reads the code itself. Use the platform’s layout for headlines, captions, etc. to emphasise any message instead of using colours and fonts within a text block. Image of text makes the text inaccessible to the screen reader. In the example with the graph, the additional numbers should therefore be written as text outside the image.
- Use the Alternative Text feature to provide a good description of the images that are added to the page. This is not a caption (which complements an image), but a description for the ones who cannot see.
- Try to find videos with sub titles, and written alternatives to audio files. Teachers who record their own material can attach the manuscript.
- Not all students can use a mouse, and will instead use the keyboard to scroll through the elements. With this method, the user cannot jump from element to element, so the order is of importance.
- Students with reduced mobility and/or fine motor skills will benefit from good distance between clickable options, such as line spacing in vertical menus. Many dropdown menus are difficult to use with a mouse as they require precise handling.
- On a well-designed page, colours, placement, design, and size of the elements are used to communicate relevance and encourage the eyes move along a pattern. Users of screen readers will access the elements from left to right and from top to bottom, regardless of relevance. The fewer irrelevant elements there are on the page, the better it is for everyone.
- Avoid videos and sounds that start automatically when the page opens.

Low literacy, attention deficits and inadequate language skills

Often there are requirements for prior knowledge and skills when students take a course, but students may be able to meet the requirements even though
they may struggle with reading, language or paying attention. It is therefore important to take this group into account when designing the online elements.

**Good practice:**

- Keep the language simple and unambiguous when writing instructions for students. This is especially important for introductory information, tasks and assignments.
- When giving the students the choice between two options, for example between written text or multimedia text, make it clear that these are two equivalent alternatives.
- Be aware of dialects, especially when recording audio. Non-native speakers may be able to understand the standard version of the language, but struggle with the more local variants, especially when there is no visual support.
- Heavy elements (like a video) that cause the page to load more slowly may cause a student with concentration difficulties to turn their attention to something more fun.

**More tips for good visual design**

There are a good number of opinions about what constitutes good visual design on web pages, and of course fashions and trends surface and disappear here as in other design professions. The following rules of thumb may nevertheless be a starting point, and then we can break them with the conscious intention of achieving a certain result.

**Good practice:**

- One or two fonts and font sizes are usually enough to get the message through.
- Contrast colours may be effective, but a harmonious colour palette will help to keep the attention on the content.
- When using images, think illustration rather than decoration.
- Well placed blank areas can make the page content easier to see and thus more accessible.
- Movement can often be distracting. Wandering headlines, flashing banners and other ‘flying figures’ should be avoided.

A visually well-functioning website often has much in common with a successful business card.

It is difficult to recommend specific fonts, image sizes and colours, but once you find something that seems to work, it is a good idea to test it out on the
pages of any device that you believe the students will use. Many people prefer to work on complicated tasks on a desktop Mac or a PC with a big screen (which again indicates that course pages are usually designed on such devices) and it is important to see how the design works on laptops, tablets and mobiles. A responsive design changes according to the device it is accessed on, and this functionality is a feature of many learning platforms and publishing platforms.
IV Glossary

Assessment:
The process of identifying what learning outcome the student has achieved. We differentiate (to some degree) between assessment for learning, which is the ongoing and often informal assessment, the basis for feedback to the student to help them learn better, and which is sometimes called formative assessment, and the assessment of learning, which is sometimes called final assessment or summative assessment, and is intended to describe to what degree the intended learning outcome is achieved.

Blended learning:
A model where tuition and learning processes are planned both online and face-to-face in the same course.

Course:
A complete study programme, whether it is followed over several years like a bachelor’s or master’s degree, or takes less time like a professional upgrade course. Sometimes we refer to smaller parts of a longer programme as a unit or study unit.

Evaluation:
The process and result of analysing the quality of the tuition, course or educational institution.

Learning:
A relatively permanent change (or potential change) in behaviour due to past experience. In education, tuition facilitates a learning process that will result in a defined learning outcome for the students.⁵²

Learning outcome:
what the student knows, understands and is able to do at the end of the course or study unit. In the European Qualifications Framework (EQF), the learning outcomes are defined in terms of knowledge, skills and competence. Biggs & Tang⁵⁴, often referred to in this guide, use the term Intended Learning Outcome for the description of what the students

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should learn and Learning Outcome for the actual result. In this guide, however, we use the term Learning Outcome both for the intended and achieved result, as there seem to be minimal risk of confusing the two terms in the context.

**Learning resources/Learning material:**
In Flexible Education Norway’s Quality Standards, the term is used for paper-based and digital learning materials. Learning resources include texts (both written and multimedia) but also assignments, quizzes and more complex material like games and web sites.

**Online tuition and education:**
Flexible Education Norway’s Quality Standards state that: *Online education refers to educational programmes adapted for online provision where communication through the medium of the internet between teacher and students and among the students is an integral part of the programme.* In the context of this guide, online tuition includes both the planned and executed pedagogical facilitation for the learning process online.

**Student:**
The person who is learning and who the tuition is aimed at. This includes *pupils* and *course attendees*.

**Tutor:**
A person who performs the different roles and functions in the process of planning, facilitating and carrying out the tuition. This can include *teachers, counsellors and academically responsible people*. Some will have more than one role.

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Appendix: A help for analysis and planning

Adapted template for pedagogical analysis
(an example from Innland University of Applied Sciences, Center for lifelong learning)

<table>
<thead>
<tr>
<th>Title for the study/unit/course</th>
<th>Course supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

1. LEARNING GOALS

<table>
<thead>
<tr>
<th>Purpose of the learning project (anchoring in strategy, plans, generic goals etc.)</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Main goal of the learning project (specific goal)</th>
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<tbody>
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<table>
<thead>
<tr>
<th>Intended learning outcome Knowledge</th>
<th>Intended learning outcome Skills</th>
<th>Intended learning outcome General competence</th>
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</table>

2. PARTICIPANTS

<table>
<thead>
<tr>
<th>Profession/area of work</th>
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</table>

<table>
<thead>
<tr>
<th>Target group; size (sub groups)</th>
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<tbody>
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</table>

<table>
<thead>
<tr>
<th>Age and gender</th>
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<table>
<thead>
<tr>
<th>IT-skills</th>
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</table>

<table>
<thead>
<tr>
<th>Level of competence (educational level, experience, background etc.)</th>
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</table>

<table>
<thead>
<tr>
<th>Motivation for participation</th>
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<td></td>
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</tbody>
</table>
### Cultural background and language skills

### Geographical distribution

### Special challenges for this target group (abilities, sympathies/antipathies within the group etc.)

### Summary of the consequences of this project

#### 3. SETTINGS

- What is the deadline for the project?
- What are the economic frameworks for the course/study?
- What are the requirements for equipment, including hardware, software and internet access for the participants?
- Are there other practical conditions that must be taken into account?
- Are the available lecturers academically and pedagogically competent?
- How can students’ progress be facilitated and secured?

### Summary of the consequences of this project

- Into which main elements and modules is it rational to divide the academic content?
- Are there specific aspects of the academic material, in relation to the learning outcomes, that guide the pedagogical design? (mandatory theoretical knowledge, demands for simulations or practical exercises, individual adaptations etc.)
## 5. LEARNING ACTIVITIES

**How is the learning project to be facilitated?** (purely online, combined model (elaborate), supported by guidance etc.)

**Which learning activities and pedagogical methodologies are planned, and why?**

## 6. ASSESSMENT

**Are there specific requirements for the participants to pass the course/s?** (external or internal requirements for certifications, etc.)

**How will the participants be assessed – and when?** (describe form of assessment)

**How will the participants receive feedback on their assessment?**
Teaching and learning online can be challenging for both tutor and students. In this guide, we try to shed light on different aspects of online tuition and what should be taken into consideration when planning for learning online.

Our target group are course writers and tutors who teach online, whether on a blended or purely digital course. We hope the tips, advice and practical examples will be useful to our readers.