

GUIDE TO THE EUROPEAN CAPSTONE MODULE

Lifelong Learning Programme

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Capstone Module Project



Education and Culture DG

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FOREWORD – overview of the Capstone Module Project

This module handbook has been prepared as part of a Euro-module project funded by the European Commission under its Lifelong Learning Programme, to develop European guidance on undertaking a 'Capstone Module'.

In definitional terms, a 'capstone' is commonly defined as "A crowning achievement; a culmination" (Wordnet). A capstone module (which is often described variously as a dissertation / thesis / research project / final project etc.) is found across most subject areas in most Universities in most EU Member States, as an integral part of first-cycle (Bachelor degree) and second-cycle (Master degree) qualifications, e.g. Silbergh has noted that, "More or less regardless of the educational system, at an advanced level of your studies you will be faced with the prospect of writing a dissertation for the first time" (Silbergh, 2001).

The capstone module acts as an integrative and culminating module and is central to the student being able to demonstrate the high-level skills and knowledge required to earn a degree-level qualification.

Contributors to this project represented business and management, engineering and technology and social science subjects. Although these subjects may appear disparate, they all have in common the requirement for students to interrogate data, reason and explain. Capstone module projects conducted in these subject areas tend to include reference to theory and to research methods, the development of hypotheses, the gathering of empirical data etc.

The grant holder and lead partner for the development of these materials was Glasgow Caledonian University and there were seven other partner institutions involved in the project, drawn from across Europe (for further information please see Appendix One). Finally, sincere thanks are due to the students of TEI West Macedonia for having devised the Capstone Module logo.

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1 INTRODUCTION – overview of this booklet

Given the context for the European Capstone Module Project noted above, its main aim was

“To develop a generic capstone module framework that can be applied across disciplinary boundaries and across national educational systems, for both 1st and 2nd cycle qualifications, to enhance quality and student exchange possibilities.”

In order to meet this aim, this booklet has been produced by the project partners, following an extensive study of practice across Europe, and it contains generic guidance on the supervision and assessment of European Capstone Modules, in accordance with national and European quality frameworks. This generic guidance has been supplemented as appropriate with information that is important to your degree.

1.1 A general note on doing your project

Capstone projects take time, they are hard work, and they form a key element of programme assessment, moreover, your capstone project will be challenging and rewarding but will require you to work in a way that is both self-disciplined and intellectually demanding.

Most capstone projects will be based upon the taught modules from your programme of study and draw on the academic knowledge and past experiences of others in your chosen field. As you develop your capstone project you will need to conduct a review of the literature in your chosen field and then choose to investigate in detail some of its specific themes, before collecting appropriate information and data and seeking to analyse and apply this to your chosen problem, having regard to the literature and to your own project aims. This process will not only require you to work in a way that is rigorous, but will also require you to be creative, to solve problems (both practical and intellectual) and develop your own approach to the management of your project. Whatever types of problem you address in your capstone project, the process of investigation is not likely to be easy.

Doing a capstone module will be challenging for you; however you will learn a tremendous amount while working on it. Completed capstone projects do not just materialise and, as it will represent a key element of your final degree award, do not underestimate its importance – as well as representing an advanced opportunity to demonstrate what you have learned throughout your studies the capstone module can also provide evidence to potential employers of your areas of competence and can form a basis for the potential development of future specialisms and expertise, whether in the workplace or through further study.



1.2 Overview of this booklet

Following on from this introduction, this booklet is structured as follows:

- An overview of the general aims that are common to all capstone modules;*
- A review of key issues associated with the supervision of capstone projects;*
- An outline of the key criteria that will be used to assess your capstone module;*
- Some thoughts on how your capstone project relates to employability in a globalising world economy;*
- References and appendices.*

Remember that this generic guidance has been supplemented as appropriate with information that is important to your degree.

2 EUROPEAN CAPSTONE MODULE: GENERAL FRAMEWORK

As the pinnacle or crowning achievement of your studies, the European Capstone Module makes a significant contribution to the achievement of all the European Union's Lifelong Learning Outcomes, as expressed in the Recommendation of the European Parliament and of the Council on the Establishment of the European Qualifications Framework for Lifelong Learning (European Union, 2008) and reproduced below:

Bachelor Degree – Relevant Learning Outcomes – European Level 6 (1st Cycle)		
<i>Knowledge</i>	<i>Skills</i>	<i>Competences</i>
<i>Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles.</i>	<i>Advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study.</i>	<i>The ability to manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts.</i> <i>The ability to take responsibility for managing professional development of individuals and groups.</i>

Master Degree – Relevant Learning Outcomes – European Level 7 (2nd Cycle)		
<i>Knowledge</i>	<i>Skills</i>	<i>Competences</i>
<i>Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research.</i> <i>Critical awareness of knowledge issues in a field and at the interface between different fields.</i>	<i>Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields.</i>	<i>The ability to manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches.</i> <i>The ability to take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams.</i>

Table 1: European Lifelong Learning Outcomes

Your capstone project is a learning exercise, where you will be required to enhance your knowledge, skills and competences in various areas, in order to achieve the European Lifelong



Learning Outcomes noted above. You will also be required to meet the specific Learning Outcomes of your programme of study, and these will be reproduced and emphasised later in this handbook. Prior to examining these programme-specific Learning Outcomes however, it is appropriate to consider in greater detail the general areas in which you may wish to develop your abilities through undertaking the European Capstone Module. The list of ten key areas below in which you will have to develop your abilities has been developed in line with the findings and recommendations of the Tuning Project, which outlined the range of competences to be developed in European Bachelor and Master Degrees, across a range of subjects (Tuning, 2007).

- 1. Undertaking the European Capstone Module should enable you to enhance your organisational and planning and project management skills. The proficient organisation of time is to be engendered through self-discipline, together with the monitoring of meeting of timescales/deadlines through the use of mechanisms for regular reporting in conjunction with your supervisor(s). If you have difficulty with organisational and planning / project management skills then seek help – there may be courses you can go on to help – a capstone project cannot be left until the last minute and then done over a weekend – success will require you to plan ahead and be well-organised.*
- 2. When doing the European Capstone Module students should be able to work independently / autonomously, even if engaged on a group project. The capacity of a student to take independent action, accept responsibility for their own learning and deal with unfamiliar situations and problems is critical to successfully achieving the Lifelong Learning Outcomes listed in Table 1 on page four.*
- 3. As noted above, in doing your work you will be required to act with independence and initiative, making decisions and carrying out research work for an extended period of time with limited assistance. However, remember that as you are representing the institution when doing your project, remember that any contact with outside organisations e.g. in industry, must first be discussed with your supervisor. When you meet with them, please ask about any specific written agreements, ethics forms etc. that need to be completed to keep within the rules of your study programme prior to starting your actual project work.*
- 4. Undertaking the European Capstone Module will encourage the extension of the information gathering and collation skills that you have developed through your studies so far. A capstone project will require you to retrieve and analyse information from a wide variety of different secondary sources, e.g. internet, printed matter, verbal*



- reports, audio-visual materials etc. Equally important as gathering and analysing information however is the ability to evaluate the quality and validity of the secondary data that you've gathered. The adoption of such an evaluative approach whilst using this range of different source materials does not come easily to everyone yet is critical to undertaking a successful capstone project. Again, if you are having difficulties with this you should ask your supervisor for further guidance and/or try to attend any workshops / seminars that are being held on how to do this.*
- 5. Emphasis should be placed on taking responsibility for problem-solving and decision-making when undertaking your European Capstone Module. Proactive decision making and taking the initiative when developing solutions to problems are critical to success and are required of all students. Bear in mind that it is your capstone project and that it is for you to make key decisions and to solve problems. Your supervisor will be able to discuss potential decisions, but they cannot actually make them, nor can they solve all your problems for you – being independent and accepting responsibility in this regard are essential outcomes at the higher levels of Lifelong Learning.*
 - 6. Nobody can know all of the relevant input requirements for your capstone project. Higher-level learning brings with it an increase in the degree to which lack of predictability needs to be managed by you. There are not therefore set procedures in terms of exactly what you have to do and when – it is not your supervisor's job to provide you with an exhaustive account of exactly how to proceed. It is your task to compile and construct your plan of work in order to tackle your problem or question and your responsibility to then undertake the necessary research work, generate and analyse results and, draw conclusions about the implications of your findings. Where you encounter new areas of theory and/or generate novel findings when doing your capstone project it is essential that you retain the ability to reflect upon and adapt to such circumstances. Students will be supported by supervisors and encouraged to develop an attitude of flexibility and adaptability, an ability to react appropriately with previously un-encountered and unfamiliar situations and the confidence to propose original ideas, interpretations and solutions, but coping with unpredictability is inherent to all research endeavours and a valuable Lifelong Learning Outcome, as noted on page four of this handbook.*
 - 7. Through the combination of advanced knowledge of subject matter and method with critical reasoning, initiative and project management skills, the European Capstone Module should encourage the cultivation of new ideas (especially in relation to the award of a Master Degree, although novel ideas and approaches can also emerge from*



projects undertaken at the Bachelor level). Examples of such novelty may be intellectual (such as in the generation of new concepts or ideas) or practical (e.g. the creation of a new products or prototype, the promotion of a new system of work etc.). A spirit of innovation which positively welcomes such new ideas is fostered within all educational institutions co-ordinating the European Capstone Module, indeed it is core to the pursuit of a higher education and expands the value of the learning process overall.

- 8. Following on from (7) above, the European Capstone Module should provide opportunities for the application of knowledge acquired. This may involve students improving their employability through the study of particular areas of knowledge or through the development and application of particular methods /skills and/or by getting the chance to exploit skills and learning in an external organisation when doing their project. All of these processes (and others) can be used to establish meaningful connections between theory and the world of work.*
- 9. In today's global workplace there are significant demands for competences in terms of both technical know-how and in respect of 'softer' social skills. To cope with these trends, European graduates must have a solid academic background in their area of expertise and be prepared to apply their knowledge in different or transversal fields. The integration of knowledge and skills /competences is therefore a key Learning Outcome associated with the European Capstone Module. Such integration may or may not involve students working in an interdisciplinary fashion. Some subjects are by their very nature interdisciplinary (e.g. engineering and management, where students are expected to apply basic knowledge gained to a multitude of 'real-world' problems) and other subject areas are not. What is required of all students though is an appreciation of the fact that they at least need to consider whether or not they will need to adopt an interdisciplinary approach to address their project problem effectively. In considering this, wide reading will be key, as will be developing a critical self-awareness of personal strengths and weaknesses, e.g. if you are a business student looking at a management problem you may need to draw on theories from psychology, sociology, law, economics etc. but can you draw on them all? Is it sensible to tackle a problem that will require you to engage with econometrics if you aren't keen on number work? In the final analysis, making a decision about interdisciplinary work will involve you making decisions about the problem in hand and about your own preferences, strengths and aspirations.*



10. Building on (9) above, the European Capstone Module promotes critical reasoning, including as noted the development of self-critical abilities. This can relate to the ability of a student to take a critical and realistic view / perspective of their own performance. Throughout a capstone project students must have an awareness of their own competences in relation to knowledge, intellectual skills, project design and management, methodological understanding, research abilities, skills of analysis and synthesis; and, of their own abilities as regards communication and co-operation and indeed any other capabilities needed within the context of their subject field / the specifics of the rules and regulations governing capstone projects in their institution. Honest and self-critical evaluation of personal performance in undertaking a capstone project adds to the quality not only of the project but also to the development of a sense of professionalism and to future success in employment. Finally, whilst research on an individual capstone project can be a lonely business at times, holding discussions on issues of process and method in informal study groups can help stimulate ideas for how to do things differently / better and may also provide ideas on content emerging from areas of expertise with which you are not acquainted.

2.1 Getting started – the topic

There are two main ways in which a topic can be selected for the European Capstone Module, although in both cases successful topic selection will essentially depend upon discussion between staff and student(s).

1. In some institutions / departments, students will generate their own project ideas at the outset, which allows significant latitude in terms of project definition.
2. In other institutions / departments, staff will provide students with a list of project titles / ideas to get you started. These ideas may have been generated by the staff themselves, whereby you'll know that there's a valid academic exercise to be undertaken, or may have been passed-on by external organisations, in which case you'll know that this is a practical problem that is exercising the minds of those in the outside world.

In both cases however, topic refinement will involve discussion between students and staff to make sure that both are certain that the project idea is realistic, achievable and valid and that it can be realised within the time and resource constraints available. A common issue, especially with project ideas that have been self-generated by students or that have been proposed by outside bodies is of over-ambition. Remember, above all else, "Research is the art of the



feasible" (Blaxter, Hughes and Tight, 2006). Further information on the process of negotiation is to be found in Section 4.

2.2 To develop your own topic idea

If you are to develop your own topic idea, before approaching staff it would be useful if you select a subject area, draw from it a project title and try to develop some general research aims, or, if your research problem is suitably well-defined, a hypothesis or hypotheses. This may prove to be one of the most difficult phases of your capstone project. It is a phase that needs careful consideration and it may lead to confusion as you work through it – do not be alarmed – this is entirely normal.

The topic you choose must:

- include issues and problems that are relevant to your programme of study;*
- relate to a theoretical base that you have knowledge of;*
- be restricted in scope to allow you to develop depth in your work;*
- be manageable in the timescale available to you.*

As noted above, the chosen topic area must allow you to develop an analysis in depth, in keeping with the requirements of the Lifelong Learning Outcomes on page four of this handbook. If you are finding it difficult to develop your thinking, the following are a few examples of how to identify a suitable problem to address in your capstone project:

- draw on themes and topics that you have explored in your studies so far;*
- consult the literature and read widely;*
- review past research for new areas to examine;*
- ask lecturers and/or people in outside bodies for advice;*
- brainstorm with classmates, listing as many ideas as possible.*

2.3 Developing an idea with an external body

If you are to work on an idea that has been developed by an external body, you can be confident that the problem concerned will have a 'practical' dimension. What you may have to do though is take care to ensure that the idea has sufficient academic content for your



programme of study and that it is sufficiently focused for you to be able to do the project in the time available.

Developing “initiative and entrepreneurial spirit” are key to the European degree (Tuning, 2007), and working with external organisations on the European Capstone Module is clearly a good way of ensuring that such initiative and entrepreneurial spirit are developed. Care must however be taken to ensure that the European Capstone Module also addresses the knowledge components required in European degrees and that methodological/scientific/technical competences are developed and applied in an appropriate way.

If your institution / department doesn’t provide you with a list of potential projects from external organisations, that does not necessarily mean that you cannot work with them. It is perfectly feasible for students to draft their own capstone project proposals and to then seek the involvement of companies etc. although you should first submit the idea to staff for checking and comment. For example, students may propose the development of innovative products, services or systems to companies, which is particularly easy to manage when their institution has developed strong partnerships between staff and organisations in the outside world. At their best such partnerships are mutually beneficial and bi-directional – external organisations can contribute challenging ‘real world’ problems to address and other valuable inputs such as access to data, access to specialised equipment etc. and higher education institutions (and of course students) can provide access to new thinking on old problems and suggestions for the development of new services, products and systems or for the adaptation of existing services, products and systems using innovative approaches.

2.4 The specific framework for your module

Specific issues that you must have regard to in relation to the specifics of undertaking your capstone project in your institution are as listed below. Please be aware that the following is in line with the requirements of your institution rather than consisting of general guidance on good practice.



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1	<i>Specific Learning Outcomes, in addition to the European LOs</i>
2	<i>Over-arching learning & teaching strategy</i>
3	<i>Institutional regulations / guidance on topic choice and approval</i>
4	<i>Institutional regulations / guidance on working with outside organisations</i>
5	<i>Institutional regulations / guidance on the collection and analysis of primary data</i>
6	<i>Institutional regulations / guidance on ethical conduct</i>
7	<i>Institutional regulations / guidance on Health & Safety, insurance arrangements etc.</i>

3 EUROPEAN CAPSTONE MODULE: SUPERVISION & OUTPUTS

This section focuses on both the supervision process for and the output requirements from the European Capstone Module. Supervision involves providing academic guidance and support to students as they progress through the various stages of the capstone project, with supervisors acting as a sounding board for ideas and commenting upon them. Supervision, “the most advanced level of teaching in the education system” (Connell, cited in Morrison et al 2007), is a fundamental component of a student’s learning journey in capstone projects. Supervision occurs in a relational context between supervisor and the student, with the supervisor supporting the largely autonomous learning of the student. Thus, supervision constitutes a partnership between the supervisor and the student, based on the professionalism, integrity and respect that is vital for effective learning, governed by an implicit or explicit contract, which operates throughout the supervision process (as represented in Figure 1 below).

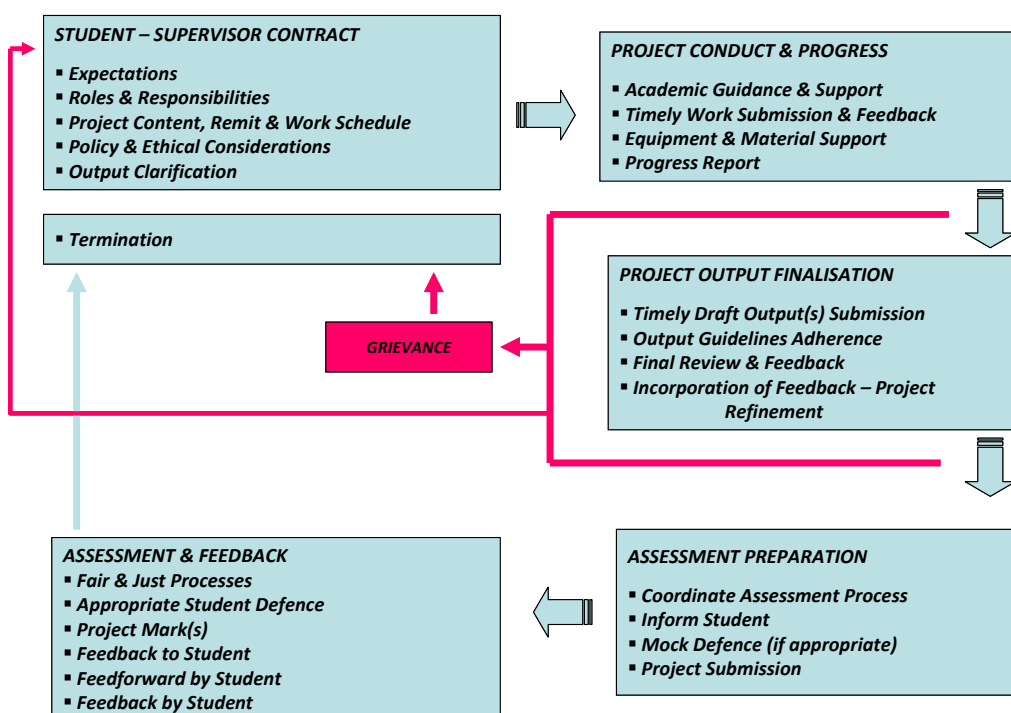


Figure 1: The Supervision Process

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3.1 Student – supervisor contract

A precursor to the ‘contract’, which as noted above can either be implicit or written, is for there to be a clear proposal in existence that explains the scope of the intended work, summarising the topic and focus of the project, the intended aim (or hypothesis), the approach / methods to be adopted and the value of intended output(s) from the capstone project. As already noted in Section 3, a topic proposal can be generated by the student, the supervisor or by a mentor from an external organisation. The topic proposal must come first as it will form the basis upon which the student – supervisor contract is discussed, refined and agreed. When finalising the student – supervisor contract particular attention will be paid to clarifying:

- 1. the expectations of both parties as regards the supervision relationship;*
- 2. their respective roles and responsibilities;*
- 3. project details and work schedules;*
- 4. specific institutional / programme policies for the management of capstone projects (e.g. the management of relationships with any external organisations);*
- 5. output criteria and requirements.*

Three of these issues (1, 2 and 5) are elaborated on below as regards the European Capstone Module, the remaining two issues (3 and 4) are subject to local requirements and arrangements.

3.2 Expectation refinement

Expectation refinement is a process involving all relevant parties. In the case of a proposal by a student or an academic, discussion takes place between the student and academic supervisor. Alternatively, where an external party is involved, the process involves all three parties (external mentor, student and academic supervisor). By the end of this process, the relationship contract between the parties is agreed upon and the partnership, which implies obligations between the parties, is created. The ‘contract’ may be formal or informal, depending on local requirements but, regardless of its nature, it will normally address issues of topic definition and interpretation, the scope of the planned work, progress requirements and milestones and further details as appropriate including the management of supervisory processes, individual tasks and responsibilities, support for the student and availability of supervision, availability of resources, action plans, expected outputs and deadlines.



3.3 Roles and responsibilities

Given that autonomous learning is a key feature of the European Capstone Module, the responsibility for learning is borne largely by the student, with the supervisor in a supportive role (see Table 2 below).

	<i>Roles</i>	<i>Responsibilities</i>	<i>Recourse</i>
<i>Student</i>	<i>Independent Learner</i>	<i>Initiate regular meetings & seek advice</i> <i>Honesty in reporting on progress</i> <i>Follow advice provided</i> <i>Take ownership of, and responsibility for, direction and content of the project</i> <i>Manage time effectively & meet deadlines</i> <i>Show initiative, creativity & interest</i> <i>Invest adequate time</i> <i>Professional conduct</i>	<i>Remit of recourse identified & procedures clearly specified to protect the interest of all relevant parties, which enable the contract to be either:</i> <i>Redefined</i> <i>or</i> <i>Terminated</i>
<i>Supervisor</i>	<i>Academic Mentor</i>	<i>Possess good knowledge of topic / process</i> <i>Listen, guide, be constructively critical and exchange ideas freely</i> <i>Be available within reason</i> <i>Act professionally and in a supportive manner</i>	
<i>External Mentor</i>	<i>Applied Mentor</i>	<i>Provide undivided attention during meetings</i> <i>Monitor student progress</i> <i>Ensure shared expectations between all relevant parties</i> <i>Caution student of known pitfalls</i>	

Table 2: Roles, Responsibilities & Recourse

3.4 Output criteria

The nature of outputs in capstone projects are varied – at one end of the continuum is the single research-based thesis and on the other is the product-based output, with multiple combinations in between. In addition, within the written thesis there are again diverse options: theory-supported empirical research; secondary source, review-based studies; and, conceptual or theory-based research. With product-based outputs, which may include e.g. a prototype, a piece of software or a web-based product, it is also common to require a supporting document such as a manual or report, as well as an evaluation of the design process. Regardless of the nature of the stipulated output, the guidelines for capstone projects must clearly identify the



nature of the output requirement(s), the mark allocation and the criteria against which each output is to be assessed. Such guidelines form a key dimension of the contract between the relevant parties to the supervisory process.

3.5 Project conduct & progress

The agreed contract will help guide the capstone project to successful completion through: awareness of individual responsibilities; detailed understanding of the project remit and challenges; regular evidence-based discussions of student work; timely submission of required material by the student; and, timely feedback by the supervisor. In addition, supervisors are responsible for helping the student to access appropriate logistical requirements (e.g. equipment, support materials and facilities) and to comply with the applicable institutional regulations. At key points in the process a formal Progress Report on the student's performance is required to ensure timely corrective action can be taken and/or to allow the introduction of alternative support initiatives.

3.6 Project output finalisation

The finalisation of the output is a critical stage in the overall process and requires a high level of commitment and timely effort from all parties. The supervisor is required to review the penultimate draft, provide relevant feedback and caution the student if any element of the stipulated output requirements has not been addressed. The student is responsible for taking on board the final feedback received and amending the work accordingly for final submission.

3.7 Assessment preparation

Given the multitude of potential project outputs, varied arrangements may be required for assessments, which may include viva voce and student presentation to a team of internal and external assessors. If appropriate, the supervisor is required to arrange a mock examination. Advance notification of arrangements to the relevant parties should be provided by the supervisor in good time.

3.8 Assessment and feedback

The staff concerned should ensure a fair and just assessment of the student. All submitted materials should be available for scrutiny and be assessed. Once any defence of the work is



complete, the relevant parties (e.g. supervisor and mentor) should discuss with the student the performance on the output(s) and their defence of it. The aim of this feedback is to assist the student to draw lessons from and reflect on the learning gained through the process of the capstone project and link such insight into future learning and development needs (feed-forward).

3.9 The end of the contract

The student-supervisor contract concludes upon the successful completion of the capstone project, following the assessment, feedback and feed-forward stages.

3.10 The specific framework for your module

Specific issues that you must have regard to in relation to the specifics of undertaking your capstone project in your institution are as listed below. **Please be aware that the following is in line with the requirements of your institution rather than consisting of general guidance on good practice.**

1	Contact details for key staff (including capstone project coordinator & supervisors)
2	Guidance on supervisor / student allocation
3	Guidance on external mentor selection & approval process
4	Guidance on process of working with supervisor
5	Guidance on process of working with external mentor and supervisor
6	Typical number of hours of staff supervision
7	Typical number of hours of student effort
8	Local guidance on progress reports etc.
9	Detailed guidance of nature of output(s) and key requirements (e.g. language)
10	Detailed guidance on presentation of output(s), including on citations and referencing
11	Guidance on local grievance processes

4 EUROPEAN CAPSTONE MODULE: ASSESSMENT GUIDANCE

Assessment is a vital, indeed the vital part of the European Capstone Module, and it is crucial that in this area students are properly informed of the criteria against which their work will be judged, the processes that will be used for assessment and the timelines concerned, with clear stipulation of the dates and times for all key stages of the process from the delivery of the capstone product(s) by the student to examination, marking, feedback and feed-forward.

4.1 Basic standards and considerations

Assessment practices will vary from institution to institution. However, each and every student attached to the European Capstone Module needs to be clear in relation to the following:

- 1. The language of outputs and examinations will normally be the mother tongue used in the institution. In specific cases however work may be allowed (or may even be required) to be submitted and/or examined in another language. Additionally, written work may require an abstract or summary in another language. It is the responsibility of students to be clear as regards specific rules.*
- 2. The consequences of exceeding submission deadlines for capstone project work must be clearly understood by the student. Unauthorised late submission of work equals an unfair advantage over other students.*
- 3. Plagiarism is the most serious of academic offences and is defined here as: "Deliberate and substantial unacknowledged incorporation into student work of material derived from the work (published or unpublished) of another." Plagiarism is considered a very serious offence and may also involve violation of legal regulations. The consequences of findings of plagiarism will be severe.*
- 4. Copyright – as with plagiarism, it is essential that students have regard to copyright legislation when preparing their work for submission, especially as regards the reproduction of diagrams, charts etc. Students also need to be clear in respect of institutional arrangements as regards where the copyright in their own work is vested – is it held by them personally? by the institution? by an external collaborating organisation? or, is there some joint arrangement in place?*
- 5. The manner in which assessor(s) are selected and deployed must be clear to the student, regardless of whether it is an internal or external assessment that is to take place and, within the specified regulations and requirements to obtain a degree, there*



must exist clear criteria that are shared with students and which enable the assessor(s) to differentiate between grades awarded to capstone projects.

6. *Students must receive a grade and credit after the assessment of their capstone project. Students must be fully informed of the appropriate institutional grading and credit systems and the connection between these and the ECTS credit and grading systems must be specified (see EC DG for Education & Culture, 2004).*

4.2 Assessment criteria – general

Students must expect that the European Capstone Module will be assessed in such a way as addresses the general European Learning Outcomes outlined in Section 3 of this handbook as well as specific Learning Outcomes associated with their programme of study and the variant of the capstone module on which they are registered. Students will be provided with specific assessment guidelines that connect with appropriate Learning Outcomes. As noted in Section 3, there are separate European Learning Outcomes for Bachelor-level and Master-level programmes, hence there will be differences in the way which these are assessed, nevertheless, there are also general criteria that will be applied when assessing all capstone projects. Key criteria (general, Bachelor, Master) are listed below, and remember there will also be local criteria to meet.

In general, the assessment of the European Capstone Module will include evaluation of:

1. **The extent to which the student is able to provide an account of knowledge acquired within the subject area that their capstone project addresses. This will involve the assessor evaluating the student's work as¹:**
 - *demonstrating an adequate and relevant knowledge of literature and of methods appropriate to the subject of investigation;*
 - *demonstrating a wide and detailed knowledge of literature and of methods appropriate to the subject of investigation;*
 - *demonstrating a systematic and comparative knowledge of literature and of methods appropriate to the subject of investigation.*

¹ *NB meeting the standards associated with each successive bullet point will lead to the award of successively better grades.*



2. The extent to which the student is able to evaluate the knowledge acquired in completing their capstone project. This will involve the assessor considering the student's work as having achieved:
 - *a discussion of the strengths and weaknesses of individual theories and methods / approaches, using a literal, systematic technique;*
 - *a critical, comparative discussion of the strengths and weaknesses of a range of appropriate theories and methods / approaches, using a systematic technique;*
 - *a critical, comparative discussion of the strengths and weaknesses of a range of appropriate theories and methods / approaches, leading to evidence of an overall synthesis of understanding.*

3. The extent to which the student has been able to adopt knowledge and ideas (e.g. from academic and non-academic literature, from pre-existing evidence etc.) in shaping the design of their capstone project and in making sense of findings / analysing options. This will involve the assessor considering the student's work as:
 - *embedding knowledge of a single approach in their project design to address issues and questions related to the subject matter of investigation;*
 - *demonstrating wider and more detailed knowledge of multiple approaches when developing their project design to address issues and questions related to the subject matter of investigation;*
 - *demonstrating a systematic and comparative knowledge of multiple approaches when developing their project design to address issues and questions related to the subject matter of investigation;*
 - *critically analysing the strengths and weaknesses of different approaches when developing their project design to address issues and questions related to the subject matter of investigation and proposing feasible solutions to these issues and questions;*
 - *critically analysing the strengths and weaknesses of different approaches when developing their project design, to address issues and questions related to the subject matter of investigation, building to the development of independent arguments in which the design is justified with clear reference to concepts / models / hypotheses and subsequently evaluated following the advancement of feasible solutions in a reflective fashion.*



4. The extent to which the student has been able to move from an explanation of findings / proposals to valid conclusions. This will involve the assessor considering the student's work as:
- *giving an account of their conclusions in an easily understandable way;*
 - *providing conclusions with reference to the existing knowledge and evidence base in a well-structured and efficient way;*
 - *providing conclusions with a clear explanatory (rather than descriptive) direction, building on the existing knowledge and evidence base;*
 - *providing conclusions which have the scope to require adaptation of the existing knowledge and evidence base and which may lead to the formulation of new concepts / models / theories.*

4.3 Assessment of European Bachelor Capstone

A Bachelor degree can be awarded to a student who has, through their European Capstone Module:

- *demonstrated knowledge and understanding in a field of study that supersedes their secondary education and builds upon their experience of higher education. Their capstone project will be supported by advanced textbooks and include some aspects that will be informed by knowledge of the forefront of their field;*
- *demonstrated an ability to apply their knowledge and understanding in a manner that indicates a professional approach that is appropriate to their academic field or vocation;*
- *demonstrated higher-level competences appropriate to their academic field or vocation, typically through devising and sustaining independent arguments and proposing reasoned and feasible solutions / conclusions in respect of problems addressed within their capstone project;*
- *demonstrated the ability to gather relevant data (usually within their field of study) and to interpret these to inform judgements on relevant social / scientific / ethical issues etc.;*
- *demonstrated that they can communicate information, ideas, problems and solutions to both specialist (and, where relevant, non-specialist) audiences, in a clear and concise manner;*
- *demonstrated that they have developed those learning skills that are necessary for them to undertake a significant study with a high degree of autonomy.*



4.4 Assessment of European Master Capstone

A Master degree can be awarded to a student who has, through their European Capstone Module:

- demonstrated knowledge and understanding that is founded upon and extends and/or enhances that typically associated with the Bachelor's level in a manner that provides a basis or opportunity for originality in developing and/or applying ideas, typically within an academic research context;*
- been able to apply this knowledge and understanding and their problem-solving abilities in new or unfamiliar environments and within broader (often multi-disciplinary) contexts related to their field of study;*
- shown advanced knowledge of methodological issues, research approaches and methods;*
- shown advanced capabilities as regards integrating knowledge, handling complexity and formulating judgements with incomplete or limited information, include reflecting upon the social and ethical responsibilities that flow from the application of their knowledge and judgements;*
- communicated their conclusions, and the evidence base and rationale underpinning these, in a manner whereby specialist and non-specialist audiences can clearly and unambiguously comprehend them;*
- developed the learning skills to have allowed them to continue to study in a sustained manner that is largely self-directed and autonomous.*

4.5 Post-assessment

Following-on from the conclusion of the European Capstone Module, it is important not only that students receive feedback from their supervisor but that they have an opportunity to provide feedback to the institution on their capstone project experience. This requires there to be mechanisms in place to secure feedback from the student, especially as regards: quality of supervisory support; relevance of learning to the programme of study; facilitation processes and access to / clarity of supporting guidelines; areas of strength and of weakness; and, key challenges experienced. The actual mechanisms used to gather such information will vary from institution to institution, but when collated and analysed such data can help inform the continuous improvement of the capstone module. Students are kindly requested to take full advantage of any opportunities to provide feedback for the benefit of future candidates.



4.6 *The specific framework for your module*

Specific issues that you must have regard to in relation to the specifics of undertaking your capstone project in your institution are as listed below. Please be aware that the following is in line with the requirements of your institution rather than consisting of general guidance.

<i>1</i>	<i>Timelines, incl. submission, marking, viva, feedback etc. and rules on late submission</i>
<i>2</i>	<i>Guidance on appointment / role of examiners and on the process of assessment</i>
<i>3</i>	<i>Local assessment criteria, including marking scheme for each output</i>
<i>4</i>	<i>Local arrangements for copyright as it affects student work and plagiarism regulations</i>
<i>5</i>	<i>Local arrangements on the award of credit</i>
<i>6</i>	<i>Note on any formal appeal process (local guidance)</i>
<i>7</i>	<i>Note on arrangements for quality improvement of capstone modules (local guidance)</i>

5 CONCLUSION – The European Dimension & Employability

The European graduate will be employed within a globally mobile workforce, whether they be go on to work in multinational / domestic companies, governmental / quasi-governmental bodies or not-for-profit / charitable organisations. The increase in free cross-border movement of labour as a result of the evolution of multi-state Treaties and bodies (chief amongst these of course the European Union) has led in turn to the development of harmonised systems to ensure the employability of European citizens and the competitiveness and attractiveness of European Higher Education. This has been manifested through enhancing the comparability and compatibility of higher education structures and degrees in Europe, a goal expressed in the Bologna Declaration (European Ministers of Education, 1999). Bologna highlighted the need for increasing international compatibility between and recognition of degree programmes. Following on from this 1999 Declaration, and in keeping with the EU's Lisbon Strategy for growth and jobs, significant work has been undertaken in preparation for the completion of the European Higher Education Area by 2010 (European Council, 2002).

As part of the creation of this European Higher Education Area, national authorities and educators have been working to develop mechanisms for the international recognition of legitimate institutions, degrees, credits and grading schemes in pursuit of the following overarching goals:

- 1. The highest quality will be achieved in education and training and Europe will be recognised as a world-wide reference for the quality and relevance of its education and training systems and institutions;*
- 2. Education and training systems in Europe will be compatible enough to allow citizens to move between them and take advantage of their diversity;*
- 3. Holders of qualifications, knowledge and skills acquired anywhere in the EU will be able to get them effectively validated throughout the Union for the purpose of career and further learning;*
- 4. Europeans, at all ages, will have access to lifelong learning;*
- 5. Europe will be open to cooperation for mutual benefits with all other regions and should be the most-favoured destination of students, scholars and researchers from other world regions.*

European Council (2002)



The European Capstone Module has been developed as a small contribution to the development of this over-arching European policy commitment to educational comparability, employability and Lifelong Learning and it has been designed to enable students to be able to:

- undertake quality programmes of study, in a compatible way in the different countries of Europe, in such a manner as to also enable inter-disciplinarity;*
- do capstone projects whilst on student exchange more easily than in the past;*
- organise and benefit from extended scope for joint supervision and joint assessment of capstone projects across national boundaries;*
- earn recognised qualifications that are attractive to employers both within the European Union and beyond its borders, ensuring that opportunities for labour force mobility are maximised.*

While many students gain exposure to the study of globalisation and internationalisation through the content of their degrees and/or get the opportunity to pursue studies / structured work experience in other countries through programmes such as the EU's Erasmus Mobility scheme, some students are not able to avail themselves of such opportunities (e.g. because of personal commitments at home or because they are not EU citizens or for a range of other reasons). The adoption of the European Capstone Module by institutions is therefore a way in which the best of Europe can be brought to a wider group of students, including those who do not leave their 'home' institution, in order to develop the skills and competences of European Lifelong Learning in that setting.

Enjoy undertaking your European Capstone Module. It will be a challenge, it will be tough, but, it will, in the final analysis, be a stepping-stone to the next phase of your life, whether that will involve further formal studies or a new, post-University life in the world of work. Whichever way your choices take you, those who have been involved in the development of the European Capstone Module wish you well as you progress along the path of Lifelong Learning.

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7 APPENDIX - Contributors to the development of this module handbook

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