PERFECT
Purchasing Education and Research for European Competence Transfer

Purchasing and Supply Management Programme Specification

Guidance Document

Project PERFECT

4th White Paper: Curriculum Development

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Glossary

Formative Assessment – a range of assessment procedures conducted during the learning process in order to modify teaching and learning activities to improve student attainment.

Higher Education (HE) – post secondary/high school education at universities or similar educational establishments, especially to degree level.

Intellectual Output (IO) – the six main parts/work packages/activities of the overall PERFECT Project resulting in defined outputs depending on the nature of the IO.

IPSERA – International Purchasing & Supply Education & Research Association.

Module – a set of similar learning outcomes that relate to a specific subject area, which is normally taught as a single block or chunk of learning.

Module Descriptor – sets out the details of the Module, including learning outcomes, indicative content, assessments, textbooks and other suggested learning materials.

PERFECT – Purchasing Education and Research for European Competence Transfer (the name of the project).

Programme – the overall degree in Purchasing and Supply Management.

Programme Materials – teaching materials, including lecture slides, seminar/tutorial activities, formative and summative assessments.

Programme Specification - a concise yet clear description of individual courses and curricula, which provides a useful source of information for students, employers, external examiners and academic reviewers.

Purchasing and Supply Management (PSM) – comprises the management of external inputs – materials, services, capabilities and knowledge – that are required for building, running and maintaining the focal firm's processes, while simultaneously managing the external and internal stakeholder network with an extended upstream supply network understanding.

Quality Assurance Agency for Higher Education (**QAA**) - the independent body that checks on standards and quality in UK Higher Education. It conducts quality assessment reviews, develops reference points and guidance for providers, and conducts or commissions research on relevant issues.

Summative Assessment – assessment procedures to evaluate student learning at the end of an instructional unit by comparing it against some standard or benchmark.

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Undergraduate (UG) degree - a bachelor's degree (B.Sc., B.A., etc.), requiring about three or four years of university-level full-time study beyond secondary/high school.

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Preface

The IO4 Programme Specification is the fourth intellectual output (IO4) in the PERFECT project (Purchasing Education and Research for European Competence Transfer) and aims to develop an empirically validated, pan-European harmonised PSM curriculum that reflects the requirements of current and future PSM practice. Project PERFECT is funded by the European Union's Erasmus+ Strategic Partnerships for Higher Education programme and consists of an international group of researchers from universities in different European countries (TU Dortmund University and University of Applied Sciences Mainz, Germany; Lappeenranta University of Technology, Finland; Staffordshire University, Stoke-on-Trent, UK and University of Twente, Enschede, the Netherlands). As there is no standard practice across Europe for the development, validation and delivery of HE curricula, this IO has developed a Programme Specification, which is a concise yet clear description of two related courses (UG and PG levels) and provides a useful source of information for students, employers, external examiners and academic reviewers (HEA, 2009). In addition, many institutions use the Programme Specification as the central document to get a particular degree or qualification validated, i.e. to allow them to formally deliver the course to students. Although there is no universally agreed format for Programme Specifications, there are certain elements that are generally expected to be included and therefore the Project PERFECT Programme Specification has been designed to incorporate these. As the primary purpose of this IO is to provide institutions with a document that they can use in the validation process, the Programme Specification has been completed in as much detail as possible, but it recognises that individual countries, and the institutions within those countries, vary considerably and certain sections are, therefore, by necessity brief in nature. It should also be noted that the Programme Specification contains a detailed rationale and this may not necessarily be needed in full if the document is to be provided to certain audiences (e.g. to students).

This Guidance Document supports the Programme Specification that has been developed in this work package by establishing the rationale for its development and additional guidance for the Higher Education (HE) institutions who are looking to validate their own courses using the IO4 Programme Specification, in full or in part, to ensure that their own courses are empirically based and relevant. Therefore, this White Paper is structured in line with the different sections of the IO4 Programme Specification and should be read in

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conjunction with that document to see how the different parts of the curriculum have been developed and to assist individual HE institutions getting their own PSM courses validated through any processes they may have. In this time of continual change, the rate of development is increasing and PSM professionals need to be equipped with the necessary skills, competencies and knowledge to keep pace with these changes. As a consequence of this, educators in the field of PSM need to ensure that they design and deliver PSM courses that reflect the needs of practice and the Programme Specification of the PERFECT Project aims to fulfil this requirement.

IO4 takes inputs from a number of different Intellectual Outputs (IOs) of the PERFECT Project and various other sources. Specifically, IO1 of the project looked at the existing academic and practice based literature to generate a list of required competences and skills. These skills were further refined in IO2, in which a number of focused interviews were undertaken with a range of PSM practitioners, who held different jobs across different industrial sectors. This work was then further developed in IO3, a large-scale survey of PSM skills and competences. Further details of these IOs can be found on the project website (http://www.project-perfect.eu). The PERFECT project is divided into six scientific work packages activities; which are supported by assigned project management tasks such as the management of the consortium, communication, dissemination and exploitation of results. Figure 1 identifies and shows the linkages between the work packages that reflect the milestones, called intellectual outputs (IO).

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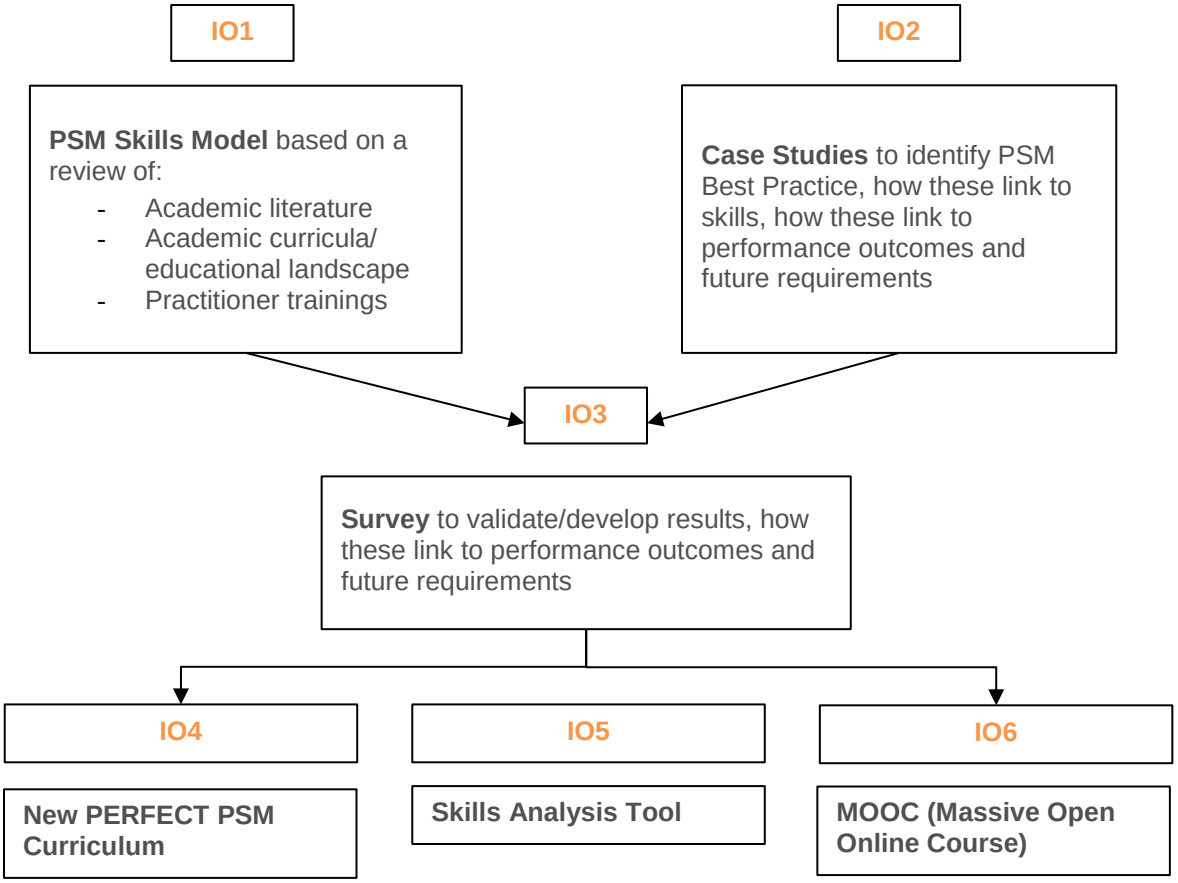

Figure 1 PERFECT Intellectual Outputs (IOs; own illustration)

The value of the project is manifold and builds on current and future challenges in practice and academia. The PSM function in any organization is a key contributor to firm performance (Drake, 2012), as more than half of the total turnover of a modern industrial firm in Europe is directly transferred to suppliers (Van Weele, 2009). Moreover, the bulk of bought-in supplies is now no longer of domestic origin, but of a European and increasingly international nature. This is a more recent phenomenon, emerging in the last two decades and companies are still struggling to find effective and efficient ways to cope with these circumstances (Van Weele & Van Raaij, 2014). This highlights the need and heightened requirement from industry for employees to possess the necessary skills and competences in this field.

The rationale for the development of the Programme Specification is provided in detail in section 2 of the Programme Specification, which establishes the need for the curricula themselves and then, secondly, how they were developed. Section 2 also demonstrates the importance of effective and efficient PSM for organisations, the increasing need for more fully equipped HE graduates in the current job markets and then deals with the key question of

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whether the current education provision across Europe can meet these needs. Although there are a number of short and broader Supply Chain Management courses, a structured search of the HE education environment shows that, unlike other disciplines such as marketing or finance, PSM does not have any standardized PSM higher education curriculum, yet.

This issue is seen at national, European and regional/international (e.g. North America) levels. Therefore, an overall desired impact of PERFECT is to increase the number of highly and relevantly qualified students who are suitable to enter the workplace in PSM related jobs. Students face a significant challenge in finding appropriate university courses and matching them to their course portfolio during international exchanges. For the HE institutions involved, the varying course content and depth in exchange programs involves the teaching of basic modules first, and then building on them further for PSM. To change this offers a significant opportunity to the European Union: If a standardized PSM curriculum in higher education would be implemented, student mobility in international programs could be also be significantly increased.

The remainder of the report is linked to the different sections of the Programme Specification and provides an explanation of how they were developed and additional guidance where appropriate. As discussed above, the Programme Specification has been designed to be taken in full, or in part, and tailored to a specific institution's individual requirements for validation and accreditation and, by necessity, this will vary from institution to institution as there is no standard approach within countries, nor across the EU. Therefore, additional supporting material is provided in this White Paper to support these processes and for ease, the numbering of this document reflects that of the Programme Specification. The Programme Specification has undergone a robust review process. It was initially developed by the IO4 Core Team, which is made up of representatives from each of the participating institutions, before being reviewed by the wider project team and then an external review by the project advisory board and additional individuals from the IPSERA education community. Feedback was obtained at all of these stages and relevant changes made to incorporate these requirements.

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General Methodological Approach

PERFECT aims to develop tangible materials that can be used by interested institutions to deliver their own programmes in PSM. Institutional processes and requirements are different across Europe and within European countries themselves, but at the core of this validation process is the need for a set of documentation that can be used to inform the institution, students and academic staff about the nature of the programme. The UK QAA states that Programme Specifications are standard sets of information that each institution provides about its programmes. Each specification clarifies what knowledge, understanding, skills and other attributes a student will have developed on successfully completion of a specific programme. It also provides details of teaching and learning methods, assessment, and subsequent career opportunities. A range of existing Programme Specifications from a variety of institutions and courses were reviewed and the salient elements from each extracted to create the overall framework for the Project PERFECT Programme Specification and it is on this basis that this document is structured.

Broadly, the development followed that of Kern (1988), which states the need for the identification of a problem, establishing objectives and educational strategies accordingly and providing a mechanism for evaluation and feedback. However, although the Programme Specification is presented as having been developed sequentially, it was an iterative process in that some areas were revisited due to feedback obtained as this further strengthened the outputs. This Guidance Document provides background and information on how each section was developed as a way of supporting institutions in the development and delivery of their own programmes.

The process starts with writing the rationale, which describes the initial situation in industry and education (from previous research in IO1) and distils the motivation for a new curriculum (the “problem”, as per Kern, 1988). This then resulted in the definition of a series of overall course aims regarding the overall orientation of the curriculum (“objectives, as per Kern, 1988”). As these are, by necessity, broad in nature, specific explicit and tacit knowledge and skills were identified (via previous research in IO2 and IO3) and combined into relevant modules and suitable module learning outcomes developed to ensure that these can be developed in the students and that relevant current and future content is covered. For each module, a module descriptor showing learning aims, indicative content, teaching/learning and

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assessment methods has then been produced. The curriculum is structured in an innovative, practice-based and learning-centred way, as the modules combine the teaching of tacit and explicit knowledge. Larger modules are created, instead of short modules only dealing with limited content, in order to integrate different topics and therefore highlighting their interdependencies. In addition, besides topical content, innovative learning methods play an important role and should be integrated into the teaching of the modules. Section 9 shows how overall Programme Learning Outcomes, along with the relevant QAA benchmark, map to individual modules and the skills and competencies that were identified in previous IOs. This shows that a robust and integrated approach has been undertaken to the flow of module development. These activities reflect the third stage of Kern's (1988) approach by dealing with "educational strategies". Finally, "evaluation and feedback", as per Kern (1988) was gathered through the development through the IO4 core team, wider project team and external review to ensure that the Programme Specification was fit for purpose.

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1. Introduction section

This section of the Programme Specification establishes the overall structure of the Programme, in terms of proposed length and number of ECTS. It also sets out their overall purpose, which is to provide institutions with a set of set of harmonised documentation that they can use to validate programmes themselves and, as this validation process will vary considerably from institution to institution, they can select which parts they may wish to use as appropriate. The Programme Specification sets out a range of modules (contained in more detail in the Appendix to the Programme Specification), which are specific chunks of learning. This selection of modules should be seen as a menu that individual institutions can select from, basing the overall Programme composition on their own requirements and/or expertise. In addition, this menu style approach can also be used in "flexing" the relative weightings of each module, for example, if an institution has requirements for a certain percentage of content to be PSM specialised to achieve certain accreditations or other institutional requirements. It also explains that, as some sections are more institution specific than others, they are necessarily brief, but aim to provide guidance for institutions looking to validate and offer an HE PSM programme.

2. Rationale section

This section of the Programme Specification is divided into a number of sub-sections. It firstly aims to establish that there is a fundamental need for a PSM focused programme and then, secondly, that the development of the programme itself has been underpinned by a robust analysis of the needs of industry and relevant PSM roles to ensure that graduates of the programme are as prepared as possible for their PSM careers. In addition, it shows how the other IOs of the project have been used to inform the development of the Programme Specification, thus demonstrating an integrated and coherent approach.

The explanation of why the programme itself is needed which starts with a discussion of the need for effective and efficient PSM, which is supported by relevant literature. This section also highlights the challenges of recruiting suitable PSM candidates meaning that organisations often have to hire university graduates with other specializations and the have to bring them up to a specialized skill level that graduates in other disciplines already possess. This

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point is further strengthened by a review of the HE education landscape, which identifies that there is a focus on short and professional courses and those that cover a broader Supply Chain Management scope.

The second part of this section describes the process of how the Programme Specification was developed. The UK QAA states that Programme Specifications are standard sets of information that each institution provides about its programmes. Each specification clarifies what knowledge, understanding, skills and other attributes a student will have developed on successfully completing a specific programme. It also provides details of teaching and learning methods, assessment, and subsequent career opportunities, and sets out how the programme relates to the qualifications framework. A range of existing Programme Specifications from a variety of institutions and courses were reviewed and the salient elements from each extracted to create the overall framework for the Project PERFECT Programme Specification. In addition, this development was informed by the use of relevant curriculum development literature, such as Kern (1988) which states the need for the identification of a problem, establishing objectives and educational strategies accordingly and providing a mechanism for evaluation and feedback. Although much of the curriculum design literature is general in nature, deployments in specific educational settings, e.g. engineering as per Litzinger et al. (2011), and medicine as per Prideaux (2003), were also used to inform the development. For example, Prideaux (2003: 268), in relation to medical courses, states that: “a curriculum has at least four important elements: content; teaching and learning strategies; assessment processes; and evaluation processes.” It is on this basis that the Project PERFECT Programme Specification has been developed.

Developing this specific Programme Specification involved using the 120 relevant PSM competencies and skills that were identified in IO1 (a systematic review of the academic and practice based literature), IO2 (case based research through interviews with a wide variety of PSM practitioners) and IO3 (large scale survey also with PSM practitioners). These were then distilled into a series of overall Programme Learning Outcomes that shows what the overall course aims to achieve and also provided the basis for establishing modules and module learning outcomes as individual and manageable chunks of learning. A key aspect of the literature and empirical data collection and analysis was to focus not only on current competencies and skills, but also what will be required in the future. This sub-section ends with the distillation of some key highlights and differences generated by the previous IOs and also

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how this impacts the development of the Programme Specification in the form of new content and also different approaches to teaching. Doing these things provides the Programme with a uniqueness and relevance in the modern PSM world and is future proofed as far as possible.

3. Aims, objectives and learning outcomes section

This section of the Programme Specification sets out the overall aims of the Programme and shows that these were developed by taking the competencies and skills generated from the previous IOs and also the UK Quality Assurance Agency (QAA) for Higher Education Subject Benchmark Statement for Business and Management. Doing this ensures that the Programme reflects both PSM specific and general requirements for Business and Management students and this is used by UK institutions in their validation processes to demonstrate that the proposed courses will meet overarching employer requirements. Although this can be seen as being overly UK focused, these should be seen as supporting the development of the programmes, rather than guiding it, as this is the purpose of the earlier parts of the project. This section shows that the Programme Learning Outcomes are broken down into subject specific areas and those that are more general in nature and would be useful in a range of business and management settings.

The section then goes onto show how the overall Programme Learning Outcomes are mapped to individual modules and it is also important to state that the overall list of skills and competencies have been mapped to individual modules to ensure that none were missed out. The links and mapping activities between overall Programme Learning Outcomes, individual modules and skills and competencies is shown for completeness in Section 9 of this White Paper.

4. Programme structure and approach to teaching section

This section sets out the structure of the Programme and highlights the indicative nature of the modules and their interrelationships and individual institutions can make use of this in a menu-style manner. In addition it notes that, although weightings have been suggested and these have been robustly applied based on the importance of specific skills and competencies from IO3 (large scale survey), individual institutions can still “flex” the relative

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weightings of each modules to meet any institutional or accreditation requirements. A summary of the findings of the IO3 survey in relation to identifying which skills make a PSM professional most successful (against specific criteria) are shown in the table below:

Skills that lead to purchasing success
Technical knowledge of products and production systems
Cross-cultural Awareness Skills - The ability to become aware of cultural values
Global Sourcing / Supplier Acquisition
Innovation Implementation - Implementing suppliers innovations
Solicit Offers (RfQ / RfP / RfI) Request for Quotation (RfQ) / Proposal (RfP)
Inventiveness - Being imaginativeness.
Leadership - Managing employees in teams.
Cost Reduction Techniques
Negotiation the Specific Terms
Project Management Skills
Supplier Relationship Management
Sustainable purchasing
Working together with the department Research and Development
Working together with the Legal department

Table 1 the top-14 PSM skills that lead to success

In addition, the following findings are relevant:

- Skills leading to purchasing success
  - In table 1 is shown the 14 skills are connected to the PSM success factors
  - 14 skills are connected to more than one PSM success factor
  - Another 30 skills are connected to one PSM success factor
  - PSM professionals are ambivalent on the role of cost reductions and quality improvement.
  - The focus is first on 'quality' as the most important objective and second are costs reductions.
  - However, PSM professionals are better in reducing costs than in improving quality.

  - In addition, the competencies and skills required at different organisational levels was considered and these are shown in the table below, which shows that soft skills tend to

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dominate the junior and senior clusters. This means that Graduates need know-how, know-what and know-why and therefore PSM curricula needs reflect this in terms of content and teaching methods

What is your competence for this task?			
Rank	Junior cluster (n = 197)	Senior cluster (n = 239)	Executive cluster (n = 79)
1	Honesty	Honesty	Purchasing knowledge
2	Loyalty	Purchasing knowledge	Optimising of purchasing process
3	Learning motivation	Loyalty	Supplier relation management
4	Social manners	Conscientiousness	Request for Quotation
5	Conscientiousness	Proactive	Evaluate offers
6	Problem solving	Result driven	Negotiation
7	Proactive	Problem solving	Adding value with Purchasing
8	Customer orientation	Adding value with Purchasing	Position of purchasing in org
9	Purchasing knowledge	Customer orientation	Problem solving
10	Result driven	Advice skills	Supplier evaluation

Table 2 Top-10 skills for juniors, seniors and executives

The weightings of the different modules for the UG and PG programme schedule recommendations depend on the importance of skills being necessary for successful purchasing (comp. table 1 and table 2). Therefore, the modules focusing on developing these skills are reflected with higher weight of effort, duration and ECTS in the programme schedules.

The modules reflecting these skills are:

- Purchasing Fundamentals
- PSM Technology
- International Context of PSM
- People skills (external)
- Personal Skills (internal)
- Management & Leadership in a PSM context

In order to understand why certain modules have been allocated to the UG or PG Programmes, the approach has been that more general modules build the foundations, whereas special and more advanced topics are best integrated into postgraduate studies. As

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the modules listed above are of widespread importance and reflect the most important skills, these have been incorporated in both under- and postgraduate schedules.

5. Awards/progression section

This section is, by necessity, brief and would be used by an individual institution to establish the exact nature of the overall degree the students will achieve and what happens if they exit from the Programme at an earlier stage. As this is different across all countries and indeed there are significant differences across institutions within individual countries this section can be seen as a placeholder for individual institutions to insert the required details.

6. Assessment section

This section establishes a link between the different assessments and individual modules to ensure that the programme and module learning outcomes can be met. A table has been developed which shows that there is a wide range of assessment types to allow students opportunities to demonstrate different skills. As previously noted in earlier sections of the White Paper, the menu style approach means that these should be seen as indicative and therefore each module based assessment are intended to be consistent across the different modules and reflect the student expectations for an example 20 ECTS module. In addition, each module descriptor recognises that both summative (i.e. at the end of the module) and formative (during the module) are important aspects of the assessment strategy.

7. Evaluation and additional information section

This section recognises that the overall success of the programme needs to be evaluated and how feedback will be obtained. This is a section that will be very specific to individual institutions, so the details are limited to some indicative examples.

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8. Support for student learning section

This section recognises that students will need support in the form of specific resources to fulfil their studies, and this is another section will be very specific to individual institutions, so the details are limited to some indicative examples.

9. Skills mapping section

This section shows how the individual skills and competences identified in IO1, IO2 and IO3 have been covered and shows which modules these have been reflected in. These are also reflected in individual module learning outcomes, which are shown in more detail in Appendix A in the Programme Specification. To show the complete mapping activity that was done in the Programme Specification would make the document unnecessarily unwieldy, so the table below shows how overall Programme Learning Outcomes, along with the relevant QAA benchmark sections (for consistency purposes, as discussed above), map to individual modules and the skills and competencies that were identified in previous IOs. Showing this here demonstrates that a robust and integrated approach has been undertaken to the flow of module development.

Programme Learning Outcomes	QAA Bench mark	Mapped to individual modules	Mapped to skills & competencies
Knowledge and understanding			
Analyse the modern global business environment, in which a variety of organisation types operate and that involves rapid change	3.1, 3.2, 3.5	International Context of PSM People skills Personal skills	Cultural awareness; Global Sourcing / Supplier Acquisition; Languages; Communication; Mobility; Sustainability; Remote-Virtual Working
		Organisational Change Entrepreneurial PSM Strategic Category Management Supply Chain Management	Critical thinking; Ability to make decisions; Change Management; Problem solving; Deal with ambiguity; Process optimisation
		Personal Skills Entrepreneurial PSM	critical thinking; Ability to make decisions; Problem solving; moderation, facilitation; Consultancy skills; Communication Skills; to mature as a personality, self-assessment; Creativity; Curiosity; Humbleness; Openness; Integrity; Loyalty; Self-reflection

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		The Business Context	Business acumen; Problem solving; Analytical Skills; Creativity; Controlling - Set Objectives / KPI's; KPI reporting design; PSM Best Practice Intelligence Scouting; Critical thinking; Ability to make decisions; Problem solving; moderation, facilitation; Consultancy skills; Communication Skills; to mature as a personality, self-assessment; Creativity; Curiosity; Humbleness; Openness; Integrity; Loyalty; Self-reflection; Strategic thinking
		Optional Language module	Cultural awareness; Global Sourcing / Supplier Acquisition; Languages; Communication
		Commercial Law Risk Management in PSM	Claims Management; Contract Development; Contract Management; Intellectual Property; Risk management
Understand the internal aspects, functions and processes of a variety of organisations and how they fit together to maximise value for an organisation	3.1, 3.3, 3.4	Operations Management	Materials Management, Manufacturing; Production; Storage/Warehouse Management; Commodity and Domain Specific Knowledge, Having technical knowledge
		Purchasing Fundamentals Entrepreneurial PSM	Basic knowledge on PSM role & processes; Strategic Sourcing; contract management; Innovative sourcing approaches
		The Business Context	Marketing; Competitive advantage; R&D; sales; Strategic Sourcing; Request for Quotation - Solicit Offers;
Understand where the PSM function and activities fit within a variety of organisational structures and how they can play a key role in ensuring that the different parts of an organisation can work effectively with each other	3.1, 3.3, 3.4, 3.7	Cross-functional working	Conflict Resolution; Cross-functional skills; Commodity and Domain Specific Knowledge; customer focus, innovation sourcing
		Purchasing Fundamentals	Commodity and Domain Specific Knowledge; Basic knowledge on PSM role & processes; Make or Buy Decisions; Purchasing Organisation Knowledge; Supplier Development; Supplier evaluation; Supplier Relationship Management; Supplies specifications development ; Supply Market Analysis ; claims management; Process Management; Supplier Management, Cost Savings
		Customer Service	Communication Skills; Customer Focus; Consultancy skills; Product Knowledge; Sales; Innovation sourcing; Supplies specifications development
		Management & Leadership in a PSM context	Leadership; Basic knowledge on PSM role & processes; Process Management; Performance Measurement and Follow-up; Stakeholder Relationship Management; persuasive & influential skills; PSM Best Practice Intelligence Scouting; Results focus/driving for results; Strategic thinking
		Supply Chain Management	Holistic supply chain thinking; Supply Chain; Category Strategy Development; Delivery of supplies; Enterprise Resource Planning / Material Requirements Planning / Advanced Planning and Scheduling; Pooling Planning and Organising; Logistics; Supply Chain Analysis and Planning; Early Supplier Involvement; Forecasting of the demand; Process optimisation; Resilience; Risk management; Strategic thinking
Identify and apply a range of PSM processes, models, initiatives, tools and techniques that demonstrate how PSM can add value to an organisation	3.4, 3.6, 3.7	PSM Technology in a Digital Environment	Automation; Big Data Analytics; Data Analysis; Computer Literacy; Technology Planning; eProcurement Technology; Tools and Systems Implementation; Enterprise Resource Planning / Material Requirements Planning / Advanced Planning and Scheduling; Pooling Planning and Organising; Remote_Virtual Working

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		Purchasing Fundamentals Operations Management	Category Strategy Development; Basic knowledge on PSM role & processes; Having knowledge process and production systems; Delivery of supplies
		Commercial Negotiation PSM Technology in a Digital Environment	Effective questioning techniques; Procurement IT Systems; Evaluate Offers & Supplier Selection
		Category Management	Category Strategy Development; Early Supplier Involvement; Portfolio Analysis Support
Develop a conviction that PSM can be managed as a strategic resource and evaluate different PSM strategy options in an innovative manner	3.4, 3.6, 3.7, 3.9	Entrepreneurial PSM	Analytical Skills; Pro-activity; business acumen;
		Risk Management in PSM	Creativity; Negotiation; Risk management
		Advanced Category Management Quality Management in PSM	Controlling - Set Objectives / KPI's; Category Strategy Development; KPI Reporting Design; Quality Assurance; Quality (QHSE); Evaluate Offers & Supplier Selection; R&D; Supplies specifications development
Evaluate the role that Sustainability plays in ensuring organisational competitiveness	3.1, 3.6	Sustainability Management Risk Management in PSM	Category Strategy Development; Employer Branding; Sustainability; Risk management
Skills			
Make use of a range of data and information to think critically about organisational issues and dilemmas to develop effective solutions in an appropriate manner	3.5, 3.6, 3.9	The Business Context Advanced Category Management Thesis project, Company project	Critical thinking; Ability to make decisions; Change Management; Creativity; Problem solving; Prioritization; Deal with ambiguity; PSM Best Practice Intelligence
Manage and lead people in an effective manner in a variety of organisational contexts	3.9	People skills	Conflict Resolution; Cross-functional skills; Negotiation; Openness; Self-confidence; Self-reliance
		Management & Leadership in a PSM context	Corporate Governance; Leadership; Ability to Make Decisions; HRM - Employee Integration and Development Plan; HRM - Employee Performance Measurement; HRM - Personnel Selection Process; HRM - Purchasing Roles and Job Profiles; Process optimisation; Project management; Training Staff (on the job); Knowledge sharing; Stakeholder Relationship Management; tactfulness & social manners; Training Staff
Demonstrate skills in the use of software applications including word processing, visual presentations, databases, spreadsheets, the internet and relevant PSM IT tools	3.9	PSM Technology in a Digital Environment	Engineering; Automation; Big Data Analytics; Data Analysis; Computer Literacy; Technology Planning; eProcurement Technology; Remote and virtual working; R&D; Forecasting of the demand; Tools and Systems Implementation
Be aware of key drivers for business success to demonstrate commercial acumen	3.9	Purchasing Finance The Business Context	Cost analyses; Cost reduction techniques; Financial acumen; Finance; Business acumen
Consider how different aspects of work can be planned, evaluated and reported to make the most effective use of time	3.9	Personal Skills	Effective questioning techniques; Result oriented; Project management
	3.9	Entrepreneurial PSM	

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Develop independent learning skills to facilitate professional development		Personal Skills	Holistic thinking in general; Learning agility; Curiosity; Passion
Ability to communicate across a variety of communications media to a variety of individuals and organisations both internally and externally	3.9	Cross-functional Working People Skills	Conflict Resolution; Communication; Networking; Knowledge sharing; persuasive & influential skills; Salesman skills / Salesmanship; Structured way of working; Stakeholder Relationship Management; teamwork
Ability to work collaboratively both internally and externally with people from a range of cultures and have an awareness of mutual interdependence	3.9	People skills Cross-functional working Personal skills	Teamwork, Conflict Resolution; Resilience; Loyalty; Self-reflection; structured way of working; tactfulness & social manners; Networking

Table 3 Top-10 skills for juniors, seniors and executives

10. Admissions section

Individual admissions are not only Institution but country and education tradition specific, so this section provides a generic guideline only and can be tailored to specific needs as appropriate.

11. Appendices guide

Appendix A contains the full set of module descriptors for the Programme and these are structured in a consistent style and covering key requirements. As per the point made above, for consistency purposes, each module has been designed for a 20 ECTS weighting. In addition, some of the rows, such as module code etc. are institution specific and therefore have been left blank. Each individual module was initially developed by a member of the core IO4 team, before being reviewed by another member and then the revised version was reviewed by a member of the wider Project PERFECT team. Finally, all the module descriptors were provided as part of the Programme Specification to our external reviewers. Feedback was incorporated as appropriate throughout this process to ensure a robust development path was followed.

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