

Supporting Responsive Curricula: Establishing a Single Point of Truth

Manchester Metropolitan University's stakeholder requirements for an Academic Database – a case study for JISC

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Executive Summary

Manchester Metropolitan University (MMU) is currently operating several key initiatives aimed at streamlining curriculum design, approval and delivery. These initiatives include the JISC-funded project “Supporting Responsive Curricula” under the “Institutional approaches to curriculum design” strand of JISC’s e-Learning Programme, as well as several linked projects and programmes directly funded by the University itself.

The SRC Project is piloting agile, demand-led curriculum design processes that promote flexible delivery and enhance learner employability. SRC is already breaking new ground in curriculum interoperability, piloting the “tagging” of curricula with competences valued by employers and professional bodies to support informed choice about study options and to assist learners in choosing electives to support their career intentions and in showcasing their experience and abilities for a professional audience. This project is supported by the development of an Academic Database of programmes and units, whose primary objective is to create and maintain a ‘single point of truth’ about approved curricula throughout the University.

This case study describes the development of stakeholder requirements for the Academic Database and provides some useful insights from one University that the authors hope will be helpful to other institutions engaged or about to engage in similar activities. It reflects thinking at a particular point in an emerging requirements gathering process, but it is hoped that others will nonetheless find value in the approach taken.

The process of developing and stating stakeholder requirements has helped staff at MMU to articulate the purposes of the Academic Database, and in particular, to move more swiftly towards an agreed set of definitions and structures that are essential for both the SRC Project and the wider Enhancing Quality and Assessment for Learning (EQAL) change initiative (see paragraph 4 below).

The data analysis and overall architecture may be of interest to other institutions wrestling with courses information management in a changing policy environment. The change to an authoritative single source of courses information from pre-validation through advertising, enrolment, teaching and learning, and to production of HEAR records and even alumni support is a powerful one. It involves breaking down self-standing silos of information and addressing information technology and process issues across the whole institution. It results in a deeper knowledge and understanding of curricula by staff in the institution, and potentially by partners, by students and other learners, by employers and employees. This knowledge and understanding can be used to develop new curriculum elements, both pro-active and reactive to demands from inside and outside the institution, from learners in general and from employers in particular. At the heart of this is a customer-centric view that sees the organisation’s processes from a student viewpoint, the student customer journey being an end-to-end lifecycle that cuts across institutional functional silos.

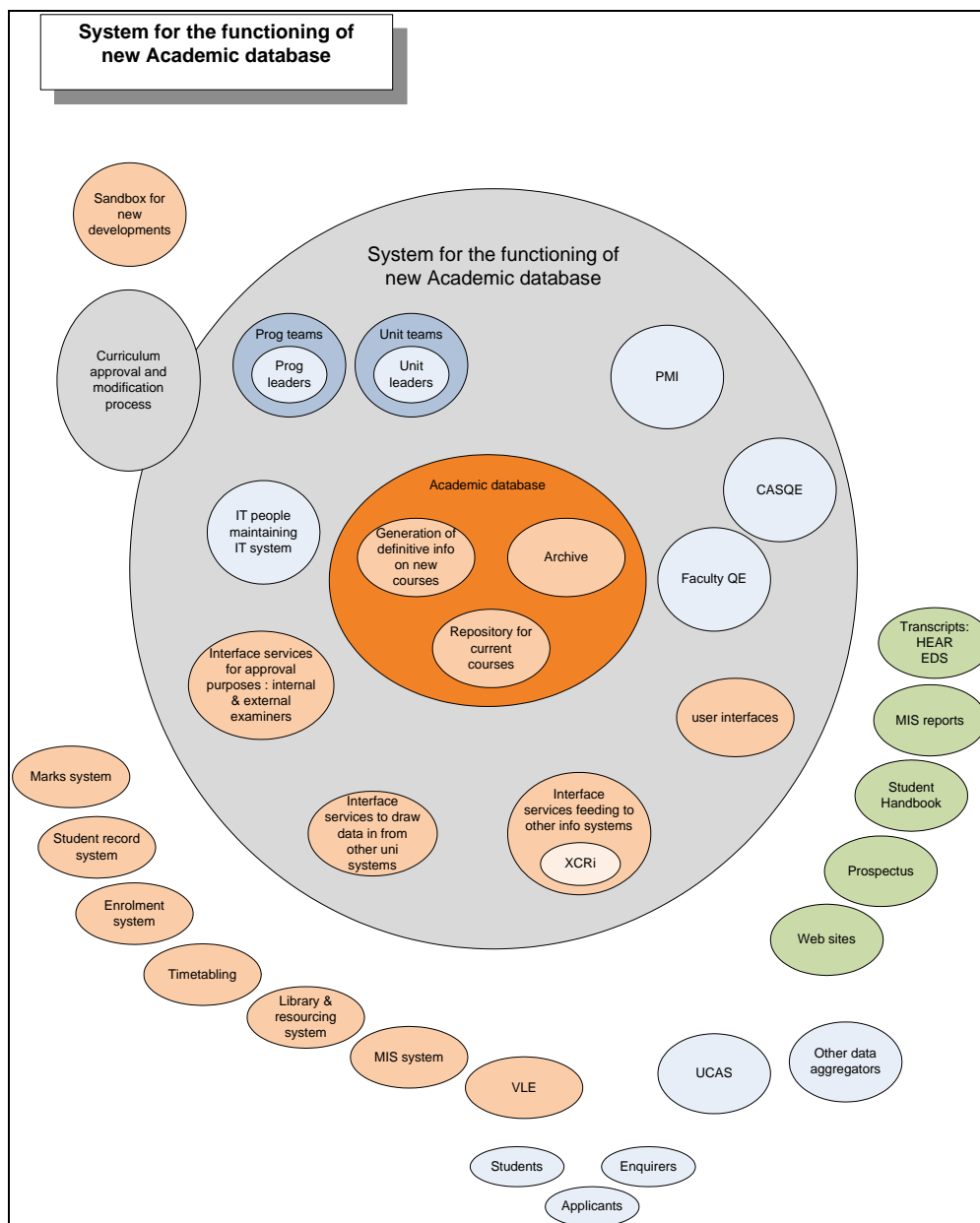
The SRC Project work is examining the close interrelationships between courses information systems, particularly those for validation and approval, and other systems within the University, including but not exclusively student record systems, timetabling, VLEs, MIS systems, marketing, libraries and resourcing services, and external systems such as UCAS and other course information aggregators. These linkages will be better served by an authoritative and centralised Academic Database than by current systems, thereby providing higher quality data for all.

This case study includes the context of the Academic Database project, an outline of the business functions and flows concerned, a systems description of the Academic Database system, and a set of stakeholder requirements, including functional, non-functional (constraints) and outline data requirements. A summary data structure is suggested in the form of class diagrams for the main data entities, matching to the entities in the eXchanging Course Related Information Course Advertising Profile (XCRI-CAP) UK eProspectus standard and the emerging Metadata for Learning Opportunities – Advertising (MLO-AD) European Norm.

Introduction and context

MMU background

- 1 MMU is currently reviewing the information it collects about Programmes and the Courses and Units that comprise them with a view to streamlining curriculum design, approval and delivery. The goal is to enter data once and re-use data items where they are needed: for instance, for setting up enrolment possibilities and assessment regimes in the student records system, or advertising courses in the prospectus. A primary objective is to create and maintain a 'single point of truth' about approved curricula throughout the University, an Academic database.
- 2 The systems map diagram here sets the new Academic database within the institutional context.

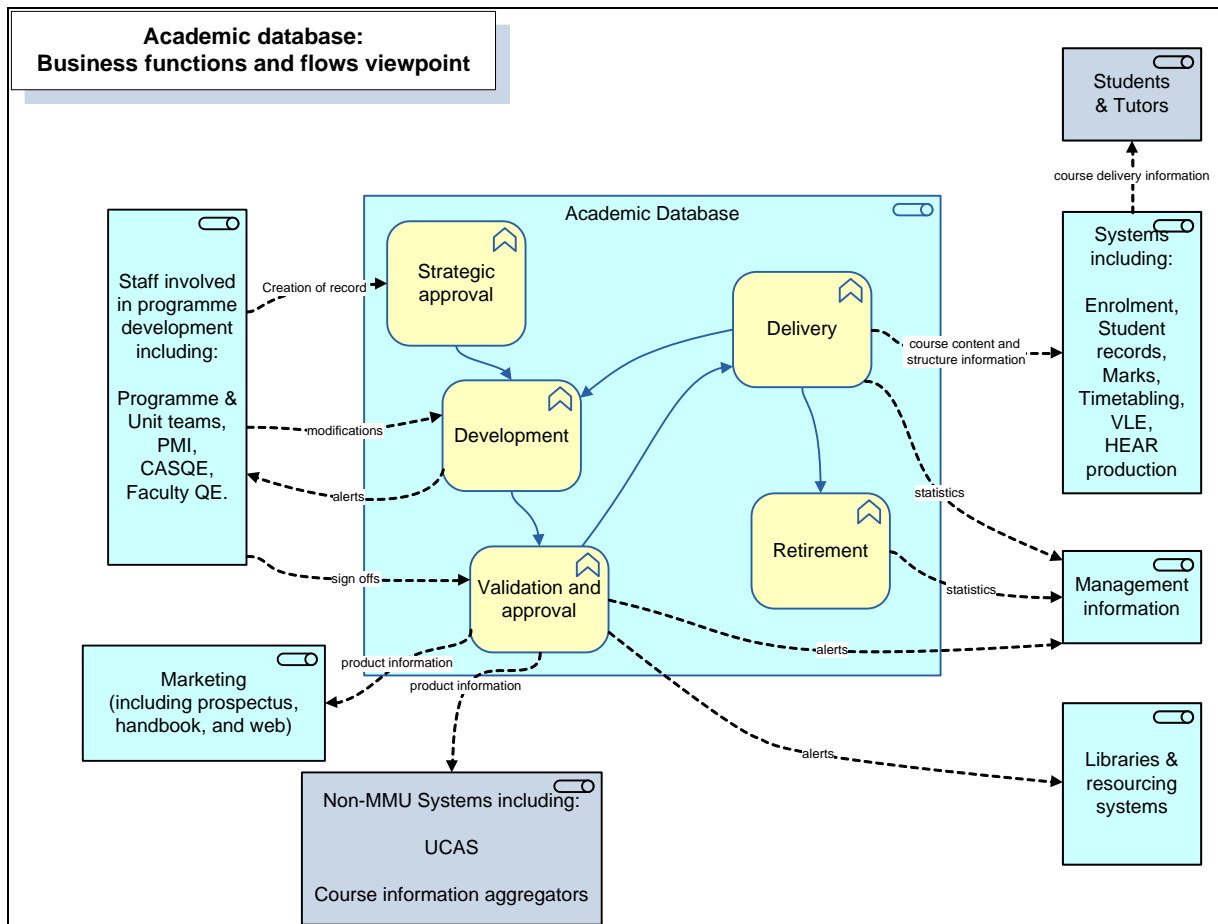


Key



PMI - Planning and Management Information department
 CASQE - Centre for Academic Standards and Quality Enhancement

HEAR - Higher Education Achievement Report
 EDS - European Diploma Supplement
 MIS - Management Information System
 VLE - Virtual Learning Environment

- 3 MMU curricula are driven by validated and approved Programmes delivered through a structured collection of Courses and Units. Articulation of delivery to students is achieved through intermediate structures between Programmes and Units, based around the concepts of full time attendance and 120 credit point chunks covering the whole academic year. These and other fundamental concepts and definitions have been and continue to be discussed and revised within the context of:
 - the JISC-funded Supporting Responsive Curricula (SRC) Project;
 - an institution-wide review of the Programme Approval, Review and Modification (PARM) process;
 - the Enhancing Quality and Assessment for Learning (EQAL) initiative.
- 4 EQAL is a wide-ranging academic change initiative that aims to achieve a transformative improvement in the quality of academic life at MMU for staff and students, with major effect for undergraduate provision from autumn 2011 followed by subsequent effect on taught postgraduate provision. The Organisational Infrastructure Strand of EQAL has as one of its aims the transformation of the complex and burdensome nature of current course structures and processes towards simplicity with high quality.
- 5 Whilst naming conventions vary across the University, simplified versions of the Programme and Unit documentation have been developed based on a five level hierarchy:
 - Programme Specification
(top level document scrutinised as a whole at a QA event)
 - Award Specification
(defines the final award titles for a Programme)
 - Course Specification
(defines the delivery modes for achieving each defined Award)
 - Stage Specification
(defines the stages that comprise each Course and specifies the Units that comprise each Stage)
 - Unit Specification
(defines the learning outcomes and assessment regime for a particular unit (or module) of study)
- 6 This structure formed the starting point of requirements gathering and is currently being tested through a process of moving from stakeholder to systems or implementation requirements.
- 7 Early work prior to and during the first stages of the EQAL initiative had begun to outline potential linkages between the proposed Academic Database and other essential functions. These are illustrated in the following diagram.



Key

-  Function
-  Role
- See previous diagram for key to abbreviations

What are stakeholder requirements?

- 8 The concept of a 'stakeholder' in a system is now well-established: a stakeholder is a person, group or organisation with an opinion, a responsibility, or an interest or who may be influenced or affected by the system under consideration. In our context here it includes managers, academics, quality assurance staff, administrators, technical staff and other operational personnel, all of these groups at multiple levels, as well as students themselves.
- 9 A major part of stakeholder requirements is 'capability requirements' or functional requirements, encapsulated by the question: "What do you want to be able to do?" and the corresponding answer: "I want to be able to ...". These are traditionally expressed in terms of a single capability required by one or more stakeholder roles or users. Functional requirements are differentiated from 'user needs', in that they must be expressed in clear, unambiguous language, so that they can be checked by individual non-technical staff and approved.
- 10 Some requirements are non-functional, in that they do not add a new capability to the system, but rather constrain, control or limit it in some way. These constraints or performance requirements must also be stated clearly and concisely, and analysed to ensure that they do not overly restrict what the system has to do.

- 11 In some areas MMU's requirements were well developed, particularly where electronic systems already existed or processes were mature, well managed and structured. Therefore some system requirements and high level data requirements were included in the work.
- 12 The purpose of the stakeholder requirements work was to provide MMU staff with a clear and detailed description of what the Academic Database had to do to satisfy the needs of users and owners, including those who used information systems and other products derived from it.
- 13 A formal process for gathering Stakeholder Requirements for the Academic Database at Manchester Metropolitan University was started in April 2010. This report was written in July 2010 and therefore represents understanding at a particular point in the requirements process.

Description of Methodology

14 The approach to the stakeholder requirements gathering, analysis and reporting was a combination of techniques from systems thinking¹ and formal requirements engineering².

Systems thinking

15 Various systems thinking techniques were used to increase the collective understanding of the circumstances of the project. These included diagramming techniques and other useful pieces of soft systems methodology, specifically generating a systems definition to describe the system under consideration, as follows:

A system

- owned by the Deputy Vice Chancellor Strategic Planning and
- maintained by Planning & Management Information

To

- enable Programme Leaders, Unit Leaders, CASQE and Faculty QE staff to compile and update definitive information about proposed, current and past Programmes and the Units that comprise them in such a way that all proposed changes to Programme and Unit specifications can receive an appropriate level of scrutiny, and the definitive information held in the system can be used to support:
 - production of transcripts of student achievement, such as the Higher Education Achievement Report and European Diploma Supplement
 - production of the online and printed prospectus and other course marketing information
 - students making option choices
 - curriculum approval and modification workflows
 - production of online and printed Programme and Unit handbooks
 - production of management information reports
 - additional future functions that make use of courses information,

By means of

- a storage system with details of proposed, current and past Programmes and the Units that comprise them, which can be accessed through
 - user interfaces that support Programme and Unit Leaders in proposing modifications and new curricula with the minimum of data entry and the maximum amount of decision support, drawing data from other university systems where appropriate
 - user interfaces that support CASQE and Faculty QE staff in ensuring proposed new or modified curricula receive appropriate internal, and where necessary external, scrutiny
 - system interfaces that connect with the Enrolment system
 - reporting interfaces that enable the information to be read as required by other university systems,

In order to

- minimise data entry and duplication of information about MMU's Programmes and the Units that comprise them
- improve the accuracy of Programme and Unit information used across the university.

Requirements engineering

16 As a counterpoise to the holistic approach of systems thinking, a more formal requirements engineering approach was taken to gathering information from stakeholders and producing the requirements statements themselves.

¹ For an introduction to systems thinking, see "Systems Thinking, Systems Practice"; Peter Checkland; J Wiley & Sons; ISBN 0 471 27911 0

² For an introduction to requirements engineering, see "Requirements Engineering"; Elizabeth Hull et al; Springer; ISBN 1 85233 879 2

- 17 Two main use scenarios were developed in order to provide a mechanism for discussion at a lengthy stakeholder workshop: A Programme Major Review Scenario and a Unit Delivery Details Scenario. Requirements were captured as follows:
- Email conversations with stakeholders
 - Scenario exploration through email conversations and workshops
 - Extensive background documentation
 - Workshops (one at the start of the process and one towards the end)
- 18 While not implementing formal 'boilerplates' for the statements, a serious attempt was made to adhere to basic criteria for writing requirements statements, summarised from Hull et al here³:
- Atomic: each statement carries a single traceable element;
 - Unique: each statement can be uniquely identified;
 - Feasible: technically possible within cost and schedule;
 - Legal: legally possible;
 - Clear: each statement is clearly understandable;
 - Precise: each statement is precise and concise;
 - Verifiable: each statement is verifiable, and it is known how;
 - Abstract: does not impose a solution of design specific to the layer below.

Summary of Activities

- 19 The stakeholder requirements were developed and produced following a workshop on 29 April 2010. The workshop reviewed high level definitions of the Academic Database and examined two scenarios, "Unit Delivery Details" and "Programme Major Review". Perspectives from all the participants in the workshop were collected although not all participants found the Soft Systems Root Definition and Scenarios a natural way to express their views.
- 20 Background information, the scenarios, the outputs of the workshop and extensive comments and notes from stakeholders were analysed in detail in order to formulate stakeholder requirements in three groupings: data requirements, functional requirements and non-functional requirements (constraints). This process involved significant and detailed dialogue with many stakeholders.
- 21 The stakeholder requirements were gathered together in a website, so that hyperlinks could be used to aid navigation. In addition parallel documents were collated for offline review.
- 22 A second workshop was held towards the end of the process to review the requirements and to initiate the next stage in the implementation (systems requirements gathering).

Outputs

Description of the Stakeholder Requirements

- 23 The stakeholder requirements were presented back to stakeholders through a website that contained the two contextual diagrams given above, a glossary, a stakeholder requirements catalogue and the scenarios used to generate them (a Word document version was also provided). The purpose of the contextual diagrams was to help explain how the Academic Database fitted with the wider environment, its main functions and information flows, and the wider systems elements. The glossary contained definitions of the major information components of the Academic Database, for discussion and agreement. They were based on definitions from an agreed list of terms issued earlier, amended in the light of further discussions.
- 24 The stakeholder requirements catalogue consisted of three main parts. The data requirements section included an overview diagram showing relationships between the major data entities, a more detailed diagram showing the potential attributes (fields) of the proposed major classes of data, and a detailed list of the classes and their attributes from a stakeholder (not a systems) perspective. Much of this material is specific to the University, so is not replicated here. However, please see the 'Class diagrams' below for an overview of the main classes in terms of Courses, Presentations and Outcomes, as well as the high level relationships between the main classes. The functional requirements section below lists the things the Academic Database has to do. The non-functional requirements section lists the constraints or performance aspects.

³ ibid

Issues

- 25 During the work issues were recorded in a log for tracking purposes. Issues included clarification of scope, naming things – is 'Route' the same as 'Award'? – definitions – how does 'indicative content' differ from 'summary'? – and relationships between elements – how do 'instances' relate to 'specification' elements?
- 26 A major issue was the extent of the functionality of the Academic Database, in relation to the functionality of existing systems, or those that would continue alongside it. A particular difficulty was the relationship between approved and validated programmes, awards, courses, stages and units, and instances or presentations of them that students could enrol and study on. Although it probably would not be held in the Academic Database, we defined the functionality and data in respect of instances where this seemed logical, appropriate and helpful, particularly where the data was likely to come from the Academic Database. Some of this functionality and data might be delivered by other systems, for example the Student Record System; it seemed likely that the SRS would handle instances of units for example, and that therefore data items such as start dates and end dates, tutors and timetabling dates, would not form part of the Academic Database.

Functional requirements

These requirements are those that specify what the system shall be able to do, its capability. Occasionally they include constraints or performance requirements (non-functional requirements), where these are specific to a particular functional requirement and do not apply to the whole system or major section of it.

The requirements are expressed in terms of a single capability required by one or more stakeholder roles or users. The format used is primarily:

The <stakeholder type or role> shall be able to <capability>.

Where requirements are more well developed, we have expressed them in terms of system requirements, of the form:

The system shall <function>.

However, these system requirements are also usually related directly to a stakeholder or role.

Stakeholders

This document describes actions that can be taken by stakeholders. Stakeholders are identified as follows:

Academics: Programme Leaders, Unit Leaders, Programme Team members, Unit Team members.

Administrators: Marketing staff, maintenance staff, registry staff, and so on.

Students

The term 'user' describes actions of a range of stakeholders.

Application services provided by the system (typically giving access to data within the Academic Database) and application services provided to the system (typically providing access to data from other systems) are indicated using the phrase "the system shall have access to" or "the system shall provide access to" or a similar phrase. These are systems requirements rather than stakeholder ones, but again, these are more well developed than conventional stakeholder requirements.

Functional requirements

Each requirement has an identifier of the form 'Fnn', where 'F' denotes a functional requirement.

General requirements

F01

Authorised users shall be able to make use of the Academic Database's approved, transitional or archived information about programmes, awards, courses, stages, unit groups, units and curriculum rules in interface services, so that it can be used in other systems.

F02

Marketing staff shall be able to gain access to the Academic Database's information for marketing purposes via an application service that will deliver data in XCRI-CAP format, for the purposes of

populating the University's paper and web-based prospectus, and for wider marketing and course advertising purposes, including supply to third party aggregators such as UCAS and the GMSA. This requirement includes information at programme level (from programme, award, course and stage) and unit level.

F03

Registry staff shall be able to use the Academic Database's information to support the production of the Higher Education Achievement Report (HEAR) and the European Diploma Supplement via an application service. This requirement needs information at programme, award, course, stage and unit levels, in XCRI-CAP format. It also includes a requirement for an automatic link into Student Record System data.

F04

The system shall show clearly when a draft programme, award, course, stage or unit is incomplete, ready for submission or approved.

F05

[intentionally left blank]

F06

An authorised member of staff shall be able to modify all parts of any record, except those with Approved, Transitional or Archived status.

F07

An authorised member of staff shall be able to sign off a programme, award, course, stage, unit or unit instance.

Unit requirements

F08

A Programme Leader or Unit Leader shall be able to create a new unit containing the minimum data as follows:

- identifier
- title
- version_number
- unit_leader

F09

The Unit Leader shall be able to complete an outline of unit details sufficient for review. This outline shall consist of:

- description_summary
- description_lt_strategy
- description_assessment_strategy
- description_aim
- credit_level
- size
- credit_value_cats

F10

The Unit Leader shall be able to present an outline of unit details for review by other academics. (see outline data items in F04)

F11

A Unit Leader shall be able to access real time reports summarising information about student enrolment, withdrawal, achievement, engagement and satisfaction for

1. the instance of his or her Unit in the current academic year;
2. previous instances of the Unit for comparison;
3. other units at the same level on the same Programme for comparison.

F12

A Unit Leader shall be able to copy a unit and modify the unlocked items in it to create a new unit.

F13

The system shall provide stakeholders with access to unit-based information about:

1. student enrolment (link to MIS)
2. student withdrawal (link to MIS)
3. student achievement (link to student tracking)
4. student engagement (link to VLE and formative assessment results)
5. student satisfaction (link to on line unit survey)

F14

A Unit Leader shall be able to modify all parts of a draft unit or draft unit instance, for which he or she is the Leader.

F15

The Unit Leader shall be able to submit a new unit for approval after all required data items are complete.

F16

On submission of the new unit, the system shall

1. prompt the Unit Leader to enter an explanation of why changes have been made
2. provide space for an explanation of why changes have been made
3. provide space for critical appraisal of the previous delivery of the unit
4. publish an alert for programme leaders of programmes which contain this unit to tell them of submission
5. provide space for programme leaders' comments
6. enable each programme leader to sign off the submission.

F17

The system shall publish alerts:

1. for library manager if there are changes to reading list
2. for ICTS staff if there are changes to specialist IT requirements

3. for timetabling software if there is an updated delivery pattern
4. for course work receipting system if there are updated assignment deadlines.

F18

A user of the SRS shall be able to set up Unit Instances using the data from in the Academic Database.

F19

The Unit Leader shall be able to modify a copy of a Unit Instance in the SRS using data from the Academic Database consisting of

1. a copy of the unit delivery instance template
2. parameters from the approved unit specification (from Academic Database)
3. populated with data from the most recent unit delivery instance

F20

When a Unit Leader makes a copy of a unit delivery instance, the system shall:

1. increment academic year, and start and end dates automatically from those of the most recent unit delivery instance;
2. list the programme titles of all the programmes that the unit appears in;
3. indicate whether the unit is elective or core in each programme;
4. present the reading list associated with the unit and any specialist IT resources;
5. present recommendations for additional reading list items derived from information from other universities about the reading lists of courses with same JACS code.

Programme requirements

F21

A Programme Leader shall be able to create an empty new programme record containing a single empty award instance and giving access to the blank programme structures (programme, award, course, stage).

F22

A Programme Leader shall be able to complete an outline programme, award, course and stage structure, including selection of units, curriculum rules and designation of unit leaders.

F23

The system shall provide access to market intelligence information related to the programme, including:

1. instances of programmes in the last five years
2. student application (link to MIS)
3. student enrolment (link to MIS)
4. student progression (link to student tracking)
5. student satisfaction (link to on line unit survey)
6. student achievement (link to student tracking).

F24

A Programme Leader shall be able to create a copy of a programme entity, consisting of:

1. a programme template
2. with parameters from the approved programme specification
3. populated with data from the programme
4. a 'drill down' hierarchical format covering:
 - > programme > award > course > stage > unit

(For some programmes the hierarchy may need to contain unit groups (between stage and unit as a number of Units are sometimes grouped to facilitate option choice)

F25

A Programme Leader shall be able to modify all parts of a draft programme, award, course or stage entity of a programme for which he or she is the Coordinator or Leader.

F26

The copied programme entity shall contain the structures in the data requirements document, including the following information populated from the copied programme:

1. final awards resulting from awards in the programme
2. a rationale for the programme
3. date of last review of the programme
4. faculty/departmental ownership
5. a summary of the approach to learning, teaching, assessment and personal development adopted by all awards in it
6. details of programme content:
 - programme > award > course > stage > unit group > unit.
7. UCAS code associated with stage 1
8. award > course > stage > unit group > unit structure
9. stage learning outcomes
10. award learning outcomes
11. course learning outcomes
12. credits (number and level) required to complete each stage
13. list of units, with curriculum rules for each, at each stage
14. exit awards available at each stage
15. stage learning outcomes
16. information within currently active an award draft
17. delivery mode
18. learning, teaching and assessment strategy.

F27

The system shall allow the operator to save changes to a programme draft at any time, including when changes are incomplete.

F28

The system shall alert the operator if a new programme is saved which is too similar to an existing one. *[Note: This requirement is not sufficiently specific.]*

F29

The system shall allow submission of a new programme draft after all the Programme Leader's changes are complete.

F30

The Programme Leader shall be able to 'retire' an award to remove it from a programme.

F31

When an award is retired, the system shall

1. archive all the award details
2. prompt the operator for an explanation of why the award will no longer be offered
3. prompt the operator to input information and new Courses for transition arrangements
4. set the status of the award to Transitional or Archived as appropriate
5. provide space for this explanation
6. indicate whether there are any non-shared units (which would cease to be offered) within the award and provide a warning about resit arrangements.

F32

A Programme Leader shall be able to enter information about how an award will be phased out. This information shall include:

1. date of last intake for award
2. textual description of how the programme will 'run out' after that date

F33

When an award is phased out or changed, a Programme Leader shall be able to enter new Courses that will show the Stages (old and new) for each academic year of the transition.

F34

A Programme Leader shall be able to make a copy of an award and modify it to create a new award.

F35

In a copy of an award an operator shall be able to modify:

1. award title
2. awarding body
3. justification for offering award
4. UCAS JACS code
5. explicit personal development & employability focus

F36

The system shall provide automatic assistance for allocating UCAS codes. [UCAS currently allocates its codes itself; this is not delegated. This requirement could be satisfied by an alert.]

F37

The Programme Leader shall be able to submit a new award draft after all the changes are complete.

F38

The Programme Leader shall be able to save changes to the award draft at any time, including when changes are incomplete.

F39

The Programme Leader shall be able to enter types of outcome and assessment at programme level. This data shall include:

1. graduate outcomes for core units
2. QAA subject benchmarks for core units
3. PSRB outcomes for core units
4. distribution of types of assessment

F40

The Programme Leader shall be able to select outcomes and assessments at stage level from those entered at programme level.

F41

The Programme Leader shall be able to review the distribution of primary JACS codes for units comprising each stage.

F42

On submission of a new award or programme draft, the system shall:

1. publish an alert for the Faculty Officer
2. prompt the Programme Coordinator to arrange appropriate meetings for the programme development process.

F43

The Programme Leader shall be able to call up a list of units, and choose from them, to add a unit to a new award or programme draft.

F44

The Programme Leader shall be able to search for a sub-set of units by text string, by level and by programme or any combination of these search categories.

F45

Unit search results lists shall be accompanied by data about the programmes that they are already used in.

F46

The Programme Leader shall be able to choose curriculum rules governing units and unit groups at award, stage, or unit level.

F47

Curriculum rules shall include:

Mandatory	All students enrolling on the programme, course or unit set must take the unit.
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Mandatory pass	As for 'mandatory', but the student must pass the unit to achieve progression.
Option list	A list of the units available for selection by students enrolling on that programme, award or stage together with a specification of the total credit points to be chosen.
Elective credit	An amount of credit that can be used to select units from any unit on the Award's Permissible List.
Pre-requisite	Students must achieve a specified level of performance (usually a pass) on another specified unit before they can select this unit or progress to this stage.
Co-requisite	Students must select another specified unit if they select this unit.
Exclusion	Students cannot select another specified unit if they select this unit.

F48

When an operator chooses a unit from a list, the system shall display the unit specification along with the following information:

- enrolment statistics
- student satisfaction
- student achievement
- name of unit leader
- names of unit tutors
- department of unit leader
- departments of unit tutors
- any associated curriculum rules

Non Functional Requirements (Constraints)

This section lists major non-functional requirements - constraints and performance attributes.

Each requirement has an identifier of the form 'Cnn', where 'C' denotes a constraint or non functional requirement.

Non Functional requirements

C01-C03

[intentionally left blank]

C04

The system shall set the default study mode to Full Time in all entities that use study_mode.

C05

Curriculum rules shall be expressed in terms of credit points rather than unit numbers.

C06

Assessment element weightings for each unit shall add up to 100 (they are percentages).

Curriculum rule constraints

C07

min_credits shall not exceed max_credits.

C08

max_credits shall not exceed the sum of the credit_value of all units in the UNIT GROUP.

C09

max_credits shall not be less than the credit_value of the smallest unit in the UNIT GROUP.

Validation

C10

The system will validate data items on entry, on saving records and on submission of changes for further action. Details of validation routines will be applied to all data items and will be determined as system requirements.

C11

The system will not permit changes to the fixed data elements of an approved or archived programme, award, course, stage or unit record. Fixed data elements are prescribed for each record type as follows:

Programme	identifier, title, version_number, description_summary, description_lta_strategy, description_personal_development_planning, description_placement_learning, description_modes_and_duration, description_aims, implementation_date, type, level, jacs, fheq_level
Award	identifier, award_title, version_number, programme_foreign_key, description_summary, description_aims, implementation_date, level, jacs, awarding_body_identifier
Course	identifier, title, version_number, programme_identifier, award_identifier, description_summary, description_career_outcomes, description_add_entry_reqs, implementation_date, type,ucas_code, study_mode, duration, language_of_study
Stage	identifier, title, version_number, course_identifier, description_summary, implementation_date, fheq_level, exit_award_title, credit_value
Unit	identifier, title, version_number, description_summary, description_indicative_content, description_lt_strategy, description_assessment_strategy, description_aim, description_learning_hours, subject, implementation_date, credit_level, size, credit_value_cats, credit_value_ects

C12 – C15

[intentionally left blank]

Status

C16

Programme, Award, Course, Stage and Unit records shall have a single status attached to them from:

Lifecycle State	Trigger
Draft	Strategic approval
Endorsed	Committee approves
Referred	Student objections to curriculum changes
Ready for approval	Signed off by ADC
Approved by Faculty	Approved by Faculty only (Major or ADC process)
Approved in Principle	Approved by DVC
Ready for Approval Panel	Signed off by CASQE
Approved by Panel	Approved by Panel
Approved	Final approval received (trigger varies dependent on process)
Transitional	Approved, but retired and under phasing out arrangements
Archived	Version retired

Glossary

Approval Conditions	Additional constraints placed on a learning opportunity as a result of the validation process, usually through an Approval Panel.
Assessment Element	One of a set of approved and summatively assessed components which make up a unit.
Award	A path of learning opportunities through a programme leading to a defined award title.
Award Unit Group	Links a specific award-based unit group to a specific award.
Award Unit Group Rule	A curriculum constraint applying to an Award.
Course	A path of learning opportunities through an award, usually divided into stages, and having a specific study mode.
Programme	An area of student work covered by a single Board of Examiners, represented by a single programme specification and a single Quality Action Plan (QAP). In many cases, a programme will contain a single award; in others, the programme will contain many.
Provider	The organisation responsible for delivering the unit instance.
Stage	A defined set of units with its own aims and learning outcomes over and above those of the individual units, which is expected to be undertaken by a full-time student in an academic year, equating to 1200 hours of student learning effort and 120 credits.
Stage Unit Group	A set of units attached to a particular stage and curriculum rule.
Rule Type	A category of curriculum constraint.
Unit	A self-contained learning opportunity with its own aims and learning outcomes based on a benchmark of a standard number of hours of

	student learning effort. Exceptionally, half and double units respectively can be approved. A unit is the basic curriculum building block. All students taking the same unit are expected to achieve the same learning outcome and will be receiving exactly the same educational content.
Unit Group Type	Categorisation of a set of units linked to an award.
Unit Instance	A particular occurrence of a Unit that students will take.
Unit Rule	A curriculum constraint applying to a Unit.
Unit Leader	A member of staff responsible for development of the Unit.

Curriculum Rules

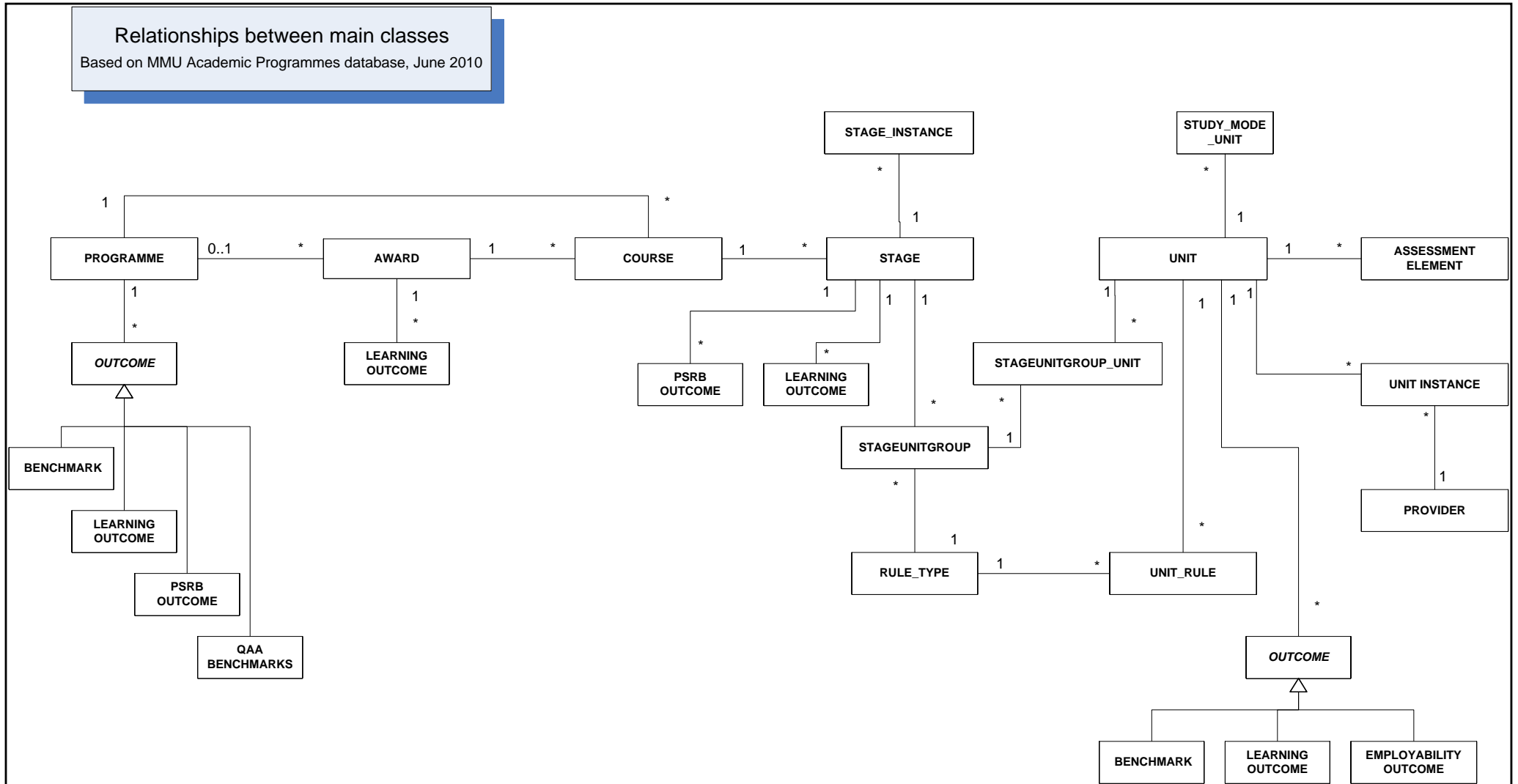
Mandatory	All students enrolling on the programme, course or unit set must take the unit.
Mandatory pass	As for 'mandatory', but the student must pass the unit to achieve progression.
Option list	A list of the units available for selection by students enrolling on that programme, award or stage together with a specification of the total credit points to be chosen.
Elective credit	An amount of credit that can be used to select units from any unit on the Award's Permissible List.
Pre-requisite	Students must achieve a specified level of performance (usually a pass) on another specified unit before they can select this unit or progress to this stage.
Co-requisite	Students must select another specified unit if they select this unit.
Exclusion	Students cannot select another specified unit if they select this unit.

Status

Lifecycle State	Definition
Draft	Strategic approval achieved; incomplete
Endorsed	Committee signs off
Referred	Student objections to curriculum changes are under consideration
Ready for approval	Signed off by ADC
Approved by Faculty	Approved by Faculty only (Major or ADC process)
Approved in Principle	Approved by DVC
Ready for Approval Panel	Signed off by CASQE
Approved by Panel	Approved by Panel
Approved	Final approval received (trigger varies dependent on process)
Transitional	Approved, but retired and under phasing out arrangements
Archived	Version retired

Class diagrams

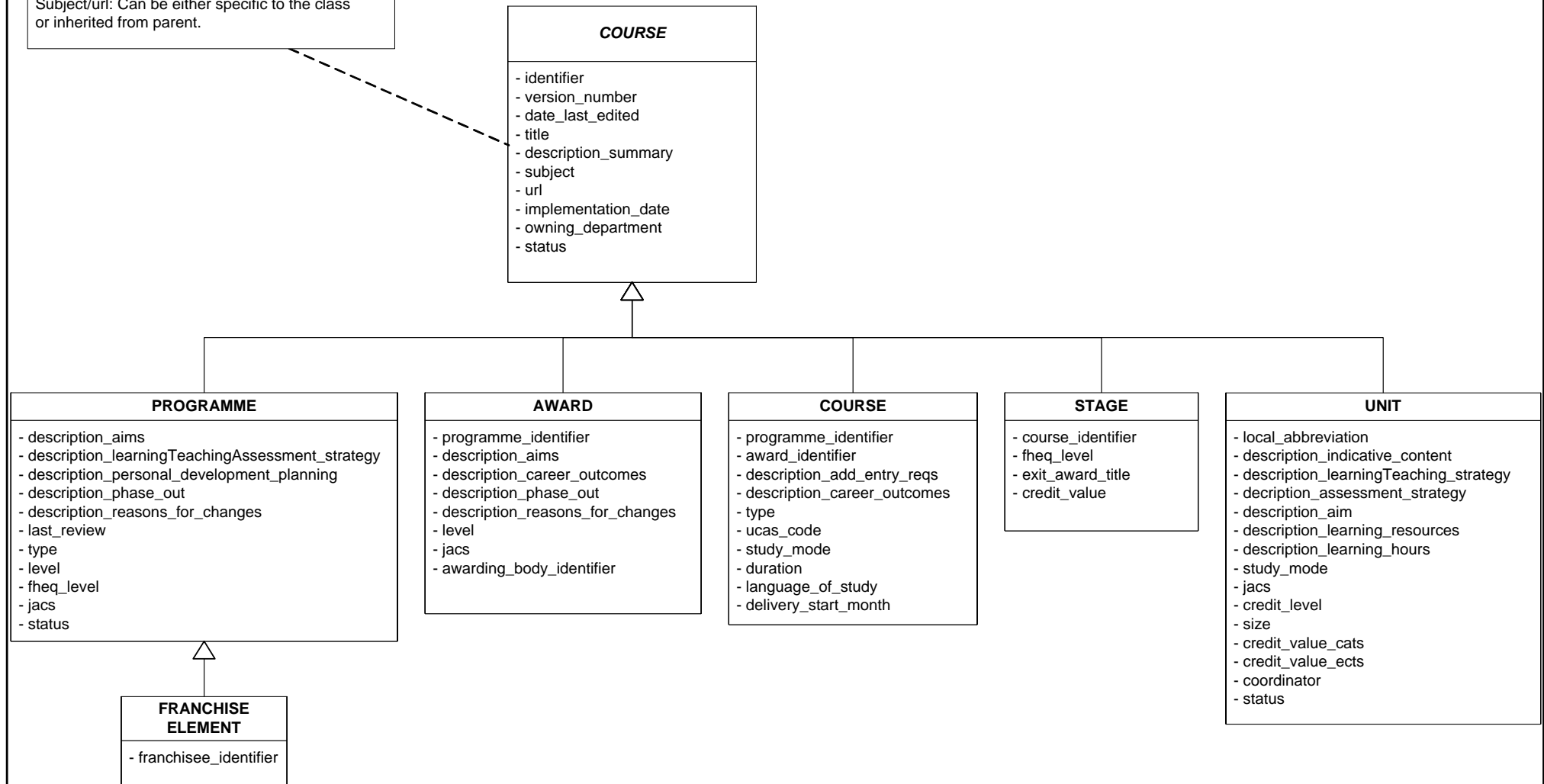
The following UML class diagrams give an outline of the data structures for a generic Academic Programme database, based on the MMU model.



Course Classes (mlo:Learning Opportunity Specification)

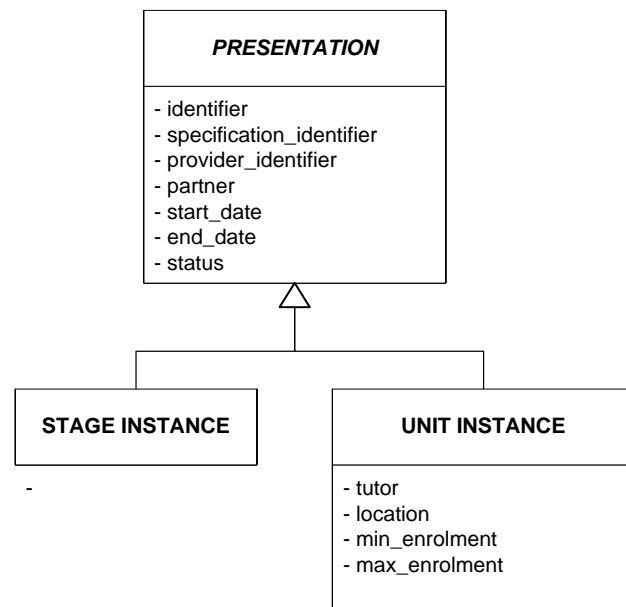
Based on MMU Academic Programmes database, June 2010

Subject/url: Can be either specific to the class or inherited from parent.



Presentation Classes (mlo: Learning Opportunity Instance)

Based on MMU Academic Programmes database, June 2010



Outcome Classes

Based on MMU Academic Programmes database, June 2010

