

Informatics Board of Studies – Course Proposal

Proposed course title: Image and Vision Computing by Distance Learning

(distance version of [INFR***](#))

Proposer(s): Tim Hospedales and Bob Fisher

Date: 26/0/2016

This template contains the following sections, which should be prepared roughly in the order in which they appear (to avoid spending too much time on preparation of proposals that are unlikely to be approved):

1. Case for Support

– to be supplied by the proposer and shown to the BoS Academic Secretary prior to preparation of an in-depth course description

1a. Overall contribution to teaching portfolio

1b. Target audience and expected demand

1c. Relation to existing curriculum

1d. Resources

2. Course descriptor

- this is the official course documentation that will be published if the course is approved, ITO and the BoS Academic Secretary can assist in its preparation

3. Course materials

- these should be prepared once the Board meeting at which the proposal will be discussed has been specified

3a. Sample exam question

3b. Sample coursework specification

3c. Sample tutorial/lab sheet question

3d. Any other relevant materials

4. Course management

- this information can be compiled in parallel to the elicitation of comments for section 5.

4a. Course information and publicity

4b. Feedback

4c. Management of teaching delivery

5. Comments

- to be collected by the proposer in good time before the actual BoS meeting and included as received

5a. Year Organiser Comments

5b. Degree Programme Co-Ordinators

5c. BoS Academic Secretary

[Guidance in square brackets below each item. Please also refer to the guidance for new course proposals at <http://www.inf.ed.ac.uk/student-services/committees/board-of-studies/course-proposal-guidelines>.

Examples of previous course proposal submissions are available on the past meetings page

<http://www.inf.ed.ac.uk/admin/committees/bos/meetings/.>]

1. Case for Support

[This section should summarise why the new course is needed, how it fits with the existing course portfolio, the curricula of our Degree Programmes, and delivery of teaching for the different years it would affect.]

This proposal is to create a Distance Education version of Image and Vision Computing to be offered as an online distance learning course synchronously and nearly identical to the residential IVC course, in

order to take advantage of interest in distance education in Informatics. The general expectation is that distant students will be able to acquire an almost identical experience to local students.

The distance learning offering will allow interested students to study in demand topics without the constraints of campus attendance, and School staff to develop skills and experience in the development and delivery of innovative distance education programmes, and in the support of distance education students. IVC is expected to become one of the courses of the distance-based PgCert in Informatics by Distance Learning degree, which is planned to start some time in 2017/18. However, we propose to deliver IVC in this form first in 2017/18 as part of the MSc in Data Science, Technology and Innovation (distance learning programme).

1a. Overall contribution to teaching portfolio

[Explain what motivates the course proposal, e.g. an emergent or maturing research area, a previous course having become outdated or inappropriate in other ways, novel research activity or newly acquired expertise in the School, offerings of our competitors.]

The proposed course will be based on a “flipped”/inverted classroom format which will be developed for the on campus course and will be delivered in this format for the first time in 2011/18, alongside the proposed distance learning version.

The inverted classroom version of the residential IVC course will be delivered in the following way:

- 1) Content will be delivered through pre-recorded videos online using the University’s Learn Virtual Learning Environment (VLE).
- 2) Learn will include the associated slidesets.
- 3) Lecture slots will be used to discuss the material covered in videos, answer student questions, and small-group work on tutorial-style problems and exercised posed by the lecturer. Distance learning students will be enabled to participate in these sessions through a live chat, and encouraged to form groups to work together using online means during the sessions.
- 4) The coursework consists of one miniproject worth 25%, and weekly tutorial groups focus on different parts of the coursework with weekly questions corresponding to the material covered in the respective week. We plan to assign the distance students to their own group using the Collaborate software (or Skype, Hangouts etc) with a local tutor.
- 5) There is a written exam worth 70% that follows the standard rubrics for Honours courses.

The two aspects that need to be adapted slightly in the distance learning form of the course are: 1) examination procedures (although the exam content will be identical. See section 1d), and 2) cohort interaction (See section 1d).

This creation of this distance education version of the IVC course will: a) increase the course cohort size (expected to be about 30-40 on campus students) by a few students (currently 5 IVR distance students in 2016/17 would take IVC) and b) extend the use of innovative methods in our current teaching.

1b. Target audience and expected demand

[Describe the type of student the course would appeal to in terms of background, level of ability, and interests, and the expected class size for the course based on anticipated demand. A good justification would include some evidence, e.g. by referring to projects in an area, class sizes in similar courses, employer demand for the skills taught in the course, etc.]

Students who are likely to take IVC are expected to be 1) IT professionals looking to extend their expertise (90%) and 2) students looking for an advanced degree (10%).

A recent market survey by Ninette Premdas (Communications and Marketing) showed about 55%, 40%, 40%, and 55% of 966 respondents interested in a full MSc, a Diploma, a Certificate or selected modules in Informatics, respectively. When asked about individual modules, 45% of 1012 respondents said that they would be interested in an Introduction to Vision and Robotics.

More realistically, we expect that there will be an additional 10-20 online students per year. There is substantial fee income from the online course, currently £725 per student, which would easily cover any incremental costs for the distance delivery. Based on current support and adding a little due to additional online support (e.g. discussion groups, tutoring and exam invigilation costs), we estimate 3 hours of teaching support per additional distance student will be needed.

1c. Relation to existing curriculum

[This section should describe how the proposed course relates to existing courses, programmes, years of study, and specialisms. Every new course should make an important contribution to the delivery of our Degree Programmes, which are described at http://www.drps.ed.ac.uk/12-13/dpt/drps_inf.html. Please name the Programmes the course will contribute to, and justify its contribution in relation to courses already available within those programmes. For courses available to MSc students, describe which specialism(s) the course should be listed under (see <http://www.inf.ed.ac.uk/student-services/teaching-organisation/taught-course-information/year-guides/taught-postgraduate-year-guide/degree-requirements/specialist-areas>), and what its significance for the specialism would be. Comment on the fit of the proposed course with the structure of academic years for which it should be offered. This is described in the Year Guides linked from <http://www.inf.ed.ac.uk/student-services/teaching-organisation/taught-course-information/year-guides/>.]

IVC will be taken mostly by MSc students, but also some CDT MSc by Research and VUG students. It is one of the options recommended for the Intelligent Robotics MSc theme. The only new aspect will be the inclusion of IVC as a core course in the online PgCert in Informatics.

1d. Resources

[While course approvals do not anticipate the School's decision that a course will actually be taught in any given year, it is important to describe what resources would be required if it were run. Please describe how much lecturing, tutoring, exam preparation and marking effort will be required in steady state, and any additional resources that will be required to set the course up for the first time. Please make sure that you provide estimates relative to class size if there are natural limits to its scalability (e.g. due to equipment or space requirements). Describe the profile of the course team, including lecturer, tutors, markers, and their required background. Where possible, identify a set of specific lecturers who have confirmed that they would either like to teach this course apart from the proposer, or who could teach the course in principle. It is useful to include ideas and suggestions for potential teaching duty re-allocation (e.g. through course sharing, discontinuation of an existing course, voluntary teaching over and above normal teaching duties) to be taken into account when resourcing decisions are made.]

Course lectures: Slides and videos for lectures of the on campus IVC course will be used. The resources will be available from the Learn VLE. No additional content will be needed, but we expect to need some additional effort to audio/video record/stream classroom activities for the benefit of remote students. This will enable distance learning students to access (and participate in) discussions of student questions and class based small group discussions. We plan to use the Collaborate Ultra platform which has been used by the IVR course for distance students.

Online discussions: We expect these will involve the course TA and will occur through the VLE..

Coursework marking: Assignments will be marked by PhD markers, as at present.

Student interaction: It is important that distance learning students feel a part of both the School and University. Resources are therefore required to engage with and encourage them to work with each other on the coursework, and engage with the rest of the cohort using the VLE social platforms.

Coursework resources: Distance students will do the same extended essay assignment as local students, synchronously.

Exam preparation, delivery and marking: The same exam will be taken approximately synchronously by all students, local and distant. The exams will be created and vetted internally and externally in the normal manner, however they will be delivered to distance students by using the QuestionMark software, a web-based platform used last year for the IVR distance student exams. Remote invigilation will be provided by ProctorU, who provide a secure world-wide delivery and invigilation service. Up to 3 versions of the exams might need to be written for 3 different time zone blocks to prevent communication of exam details. All students in the same time zone block will sit the same exam approximately simultaneously. The exams will be marked by local staff in the normal manner. This approach to distance exams has been approved by Student Administration.

Course team: As part of the wider online PgCert in Informatics effort, a core team will exist to support various aspects related to all distance education courses, e.g. manage underlying distance education platforms, provide administration, etc. In early 2017/18, this will build on the team assembled for the online MSc in Data Science; thereafter it will be supported by the team in Informatics funded by the Distance Education Initiative. T. Hospedales will be responsible for the delivery of the distance-based IVC course itself.

2. Course descriptor

[This is the official course descriptor that will be published by the University and serves as the authoritative source of information about the course for students. Current course descriptions in the EUCLID Course Catalogue are available from http://www.star.euclid.ed.ac.uk/ipp/cx_sb_infr.htm.]

This section omitted because the course is identical to the existing Agent Based Systems course as per the current course descriptor, except extended with additional delivery mechanisms for the distance students.

3. Course materials

3a. Sample exam question(s)

[Sample exam questions with model answers to the individual questions should be provided. A justification of the exam format should be provided where the suggested format non-standard. The online list of past exam papers gives an idea of what exam formats are most commonly used and which alternative formats have been http://www.inf.ed.ac.uk/teaching/exam_papers/.]

These will be similar in format to previous IVR and RSS exams, with a compulsory question covering the whole course and then a choice of more detailed questions.

3b. Sample coursework specification

[Provide a description of a possible assignment with an estimate of effort against each sub-task and a description of marking criteria.]

This will be identical to the coursework completed by residential students.

3c. Sample tutorial/lab sheet questions

[Provide a list of tutorial questions and answers and/or samples of lab sheets.]

Again, tutorial sheets will be identical to those used in residential tutorials.

3d. Any other relevant materials

[Include anything else that is relevant, possibly in the form of links. If you do not want to specify a set of concrete readings for the official course descriptor, please list examples here.]

All resources listed on the course web page and on Learn will be accessible to distance learning students.

4. Course management

4a. Course information and publicity

[Describe what information will be provided at the start of the academic year in which format, how and where the course will be advertised, what materials will be made available online and when they will be finalised. Please note that University and School policies require that all course information is available at the start of the academic year including all teaching materials and lecture slides.]

Most course content will be served from the Learn VLE hosted by the University, pointing to the inverted lecture set, reading list, assignments and other relevant materials which are hosted in Learn or MediaHopper (the University's new media server). This course will be advertised initially alongside the marketing of the PG Certificate/Diploma/MSc in Data Science programme, and eventually the corresponding PG Certificate/Diploma/MSc in Informatics, which will include Informatics website advertising, making relevant industries aware, etc. There will be dedicated administrative support for this in the first year, funded by the Distance Education Initiative.

4b. Feedback

[Provide details on feedback arrangements for the course. This includes when and how course feedback is solicited from the class and responded to, what feedback will be provided on assessment (coursework and exams) within what timeframe, and what opportunities students will be given to respond to feedback. The University is committed to a baseline of principles regarding feedback that we have to implement at every level, these are described at http://www.docs.sasg.ed.ac.uk/AcademicServices/Policies/Feedback_Standards_Guiding_Principles.pdf. Further guidance is available from <http://www.enhancingfeedback.ed.ac.uk/staff.html>.]

Students will receive formative feedback through online tutorial participation, eg. via Skype or Collaborate, and Learn's online discussion forum. Each student will also receive formative feedback through intermediate stages of the development of the miniproject. Summative feedback will occur through written feedback on their project report and demonstration. Additionally, we will monitor class issues through the use of a class student representative, and also occasional SurveyMonkey polls.

4c. Management of teaching delivery

[Provide details on responsibilities of each course staff member, how the lecturer will recruit, train, and supervise other course staff, what forms of communication with the class will be used, how required equipment will be procured and maintained. Include information about what support will be required for this from other parties, e.g. colleagues or the Informatics Teaching Organisation.]

We expect that the course tutor(s) will provide support to course students and flag any issues that arise related to the delivery of the course, as is the case with the normal delivery of local courses. As this course is also part of the Data Science and later Informatics Distance Education effort, the Data Science team or University support teams will handle most issues concerned with remote content delivery, e.g. issues with university-hosted software or VLE. Communication with the distant students will primarily occur via the VLE and a course emailing list. Minimal support is required from the ITO beyond the normal support for any additional student, whether local or distance.

5. Comments

[This section summarises comments received from relevant individuals prior to proposing the course.]

5a. Year Organiser Comments

[Year Organisers are responsible for maintaining the official Year Guides for every year of study, which, among other things, provide guidance on available course choices and specialist areas. The Year Organisers of all years for which the course will be offered should be consulted on the appropriateness and relevance on the course. Issues to consider here include balance of course offerings across semesters, subject areas, and credit levels, timetabling implications, fit into the administrative structures used in delivering that year.]

The proposal was submitted for review by the MSc Year Organiser and tabled for approval at the Informatics Board of Studies. MSc CO: Paul Jackson.

5b. Degree Programme Co-Ordinators

[Degree Programme Co-Ordinators are responsible for maintaining the official Degree Programme Specifications and Degree Programme Table for a given subject area which, among other things, specify the content of courses taken in a Degree Programme. The Degree Programme Co-Ordinators of the relevant subject areas that the course is proposed for should comment on the fit with the current curriculum of the relevant Degree Programmes. Issues to consider here are dependencies arising from pre-, co-requisites, and forbidden combinations, balance of different topics in a Degree Programme, etc.]

The proposal was submitted for review by the DPC and tabled for approval at the Informatics Board of Studies. MSc BoE Frank Keller.

5c. BoS Academic Secretary

[Any proposal has to be checked by the Secretary of the Board of Studies prior to discussion at the actual Board meeting. This is a placeholder for their comments, mainly on the formal quality of the content provided above.]

The proposal was submitted for review to the Secretary and tabled for approval at the Informatics Board of Studies: BoS Alan Smaill.