Proposal for New Degree Programme

Stage 1

Contents

OVERVIEW OF PROGRAMME

Grey text has been added to provide guidance. Please delete as you add your own text, remove italics, and change the font colour to black.

ABOUT THE PROGRAMME		
Title of programme	PhD EPCC: High Performance Computing, Computational & Data Science, Software Engineering	
Intended Award	PhD	
Alternative awards	MSc(R), MPhil	
School	Informatics (EPCC)	
Programme Director	Prof Mark Parsons, Dr Mark Bull	
Programme start dates	September 2020 (January start dates also possible for PPD).	
SCQF level of highest award	12	
Total credit value of programme ***(for highest award)***		
Partner institution(s) if any		
Mode of delivery ***(Please ✓those which apply to this programme)***	On campus	✓
	Online	
	Blended learning	
	FT	✓

	PT	✓
	Intermittent	
Expected length of programme	FT	**3 years (PhD), 2 years (MPhil), 1 Year (MScR)**
	PT	**6 years (PhD), 4 years (MPhil), 1 year (MScR)**
	Intermittent	

Description of the programme and its structure (maximum 150 words)

N.B.: This is not a 'new' programme per say: rather the creation of a new programme code to accurately record PhD students supervised within EPCC and funded via funding awarded to EPCC. Such students are currently coded under ICSA coding, but this is not an accurate reflection of where they sit physically or organisationally or in terms of supervision. In the past the relatively few students this affected made bespoke arrangements unnecessary. These numbers have doubled in the past 6 months and are expected to almost double again in 2020, meaning accurate recording is becoming increasingly important. This already has a separate degree finder entry (which links to the ICSA code behind the scenes): https://www.ed.ac.uk/studying/postgraduate/degrees/index.php?r=site/view&edition=2020&id=855.

Edinburgh Parallel Computing Centre (EPCC) offers the opportunity to study for a PhD in areas related to high performance computing, software sustainability and data intensive computing. Our computing research covers: software for future HPC systems, modelling and simulation, performance characterisation and benchmarking, and developing national and international HPC services. We are working on several Big Data research projects, ranging from earthquake prediction and astronomical data analysis to the development of international data infrastructure for managing today's immense growth in data generation.

Our software specialists have an impressive portfolio of projects, including many industrial applications. We work at the forefront of the field, for example through our leadership of the UK's Software Sustainability Institute, ensuring that today's new software continues to be improved and supported in the future.

Career, employability and opportunities for continuing professional development.

Recent EPCC-supervised (either directly or though the PPar CDT) PhD students have received offers of employment from a diverse range of employers including EPCC, Sandia National Laboratory, Leonardo, Appentra, Women in HPC, Renault F1. Specific opportunities will likely be highly dependent on a student's precise thesis topic, however this is an area in major demand with opportunities from both academia and industry.

Graduates from EPCC's on-campus MSc programmes are in high demand from a wide range of companies ranging from multinationals to SMEs both within the UK, Europe, and internationally as well as a strong demand from within academia both as researchers within HPC, computational science fields, data science, and professionally for HPC services and centres underpinning research. Recent destinations include: ARM, Intel, Amazon, MathWorks, NCR, Avaloq, Global Surface Intelligence, Boston Ltd, ECMWF, Leonardo, STFC, ICHEC, EPCC itself and PhD opportunities (including 8 current UoE PhD candidates).

BUSINESS CASE

This section should be used to outline the business case for the proposed programme. Before completing this section market research should have been undertaken.

	STRATEGIC PLANNING, RECRUITMENT & COMPETITOR ANALYSIS	
Programme Title		PhD EPCC: High Performance Computing, Computational & Data Science, Software Engineering
Programme Proposer		Prof Mark Parsons, Dr Mark Bull, Ben Morse
Strategic Planning		• All EPCC academic teaching and training activity contributes towards DDI training targets. •

Recruitment
 	
Please provide a detailed commentary on your marketing and recruitment strategy.
		Please consider the following:
		• *What demand is there for graduates with this qualification?*
		  ○ The number of PhD students who would be under this programme code if it existed has grown from 2 in 2018/19 to 4 in 2019/20 and is expected to reach 7-8 in 2020-21.
		  ○ EPCC itself has need
		• *What is the School's recruitment and marketing strategy for this programme?*
		  ○ Direct and targeted at appropriate audiences (EPCC MSc students, and students at international HPC conferences as examples).
		• *Who is the target market and how will the programme be marketed to them?*
		  ○ The target market for this programme is existing EPCC MSc students and students coming from computational science and engineering backgrounds. The programme will be marketed via the

<table>
<tr><td></td><td></td><td colspan="4">EPCC and University websites as well as targeted campaigns on FindaPhD and on occasion LinkedIn.
• Will any existing programmes be affected (negatively or positively) by the introduction of this programme?
• If so, which programmes and how will they be affected?
○ This affects the existing ICSA codes as it effectively splits them, but is done so for organisational and administration reasons only to improve reporting and analytics accuracy.
• What type of career could someone with this qualification be suited for?
○ A very broad range, from the areas of computational science, academic research, software development, fintech and banking/finance, industry, HPC-specific areas. Initial graduate destinations for MSc and PhD students over recent years include: ARM, Intel, Amazon, MathWorks, NCR, Avaloq, Global Surface Intelligence, Boston Ltd, ECMWF, Leonardo, STFC, ICHEC, and, EPCC itself.</td></tr>
<tr><td>Competitor Analysis

A competitor analysis report provides a better understanding of the marketplace and competition, from the going rate for tuition fees to the unique selling points and marketing strategies of competitor programmes.</td><td></td><td colspan="4">Not undertaken as this is not a ‘new’ programme.</td></tr>
<tr><td rowspan="4">Competitor Fees

Provide the fee structure (in British pounds) of three competitors, preferably those mentioned in the competitor analysis. These may be UK or International competitors.</td><td>Institution</td><td>Programme</td><td colspan="3">Fees</td></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td><td>Online</td><td>Home</td><td>International</td></tr>
<tr><td>N/A</td><td></td><td></td><td></td><td></td></tr>
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FEES AND COSTING		
Programme fees *Fees are expressed per academic year in British pounds. For PGT programmes, a Programme Costing Template will also be required for Fee Strategy Group.*	On-campus PGR	Same as ICSA, minus APCs.
Fees for each new PGT programme are sent by College to the Fee Strategy Group (FSG) for review and approval. The FSG has developed a Programme Costing Template to give FSG insight into the anticipated profitability of a programme and where it sits within its market. The Fees Costings template, and guidance from FSG on filling out the template is included in the spreadsheet attached to the right.		

Additional Programme Costs (PGR only)

Additional costs to the student should be noted and justified in the table below. These should consist of items that are over and above the basic provision that should be available to all students and should reflect the special additional costs associated with the specific programme of study. Individual items over £200 should be noted on a separate row.

Item	Cost	% of Total
Add rows as necessary		
Total:		100%

ANTICIPATED AND PROJECTED ENROLMENTS *What are the anticipated and projected enrolments over the next three years?*			
	Year 1	Year 2 (Total population, not only new enrolments)	Year 3 (Total population, not only new enrolments)

On-campus	**7 STUDENTS**	**10 STUDENTS**	**10 STUDENTS**
Supporting Research What market research has been planned or completed to support the predicted student numbers?	• There are already 4 students who would be enrolled on this programme code if it existed. 3 additional funded places are expected to be filled in September 2020, with net gains in year 2 before recruitment will be at least targeted to match numbers of students completing (exact recruitment will be dependent on funding opportunities).		

PLANNING AND RESOURCES	
New Courses	• N/A students may access EPCC's taught courses.
Facilities and Equipment	• Students are already accommodated in the 2.45 desk area in the Bayes Centre.
Staff	• Supervisors will be allocated supervision time as required. Some projects may have direct connections to other funded projects (e.g. ASiMoV) while others may have a small net resource implication on staff time offset by the fees funding. • Administrative capacity already exists within EPCC to support PhD students
Resource Sharing	• PhD and MSc programmes will share professional services staff support. • PhD students will be a key part of the 'peer support' in the new student support model • PhD students have opportunities to contribute (as teaching assistants) to MSc programmes, training, and Outreach.

COLLABORATIVE PROGRAMMES
Additional information is required for new programmes that are collaborations with external institutions or organisations which will result in a joint award and/or where taught components are shared. International partnerships must have a Memorandum of Understanding (MoU) in place before the programme can be approved by College. Should the proposal be progressed to Stage 2 a draft Memorandum of Agreement (MoA) will need to accompany the submission.

Separate guidance is available for the development of collaborative programmes. http://www.ed.ac.uk/governance-strategic-planning/collaborative-activity/guidance-templates
• *Please provide brief details of partnership below, including confirmation of which institution will be the Administering University, the fee structure and confirmation of any external funding (if available)*

CONSULTATION AND APPROVAL

Programme Title:	PhD EPCC: High Performance Computing, Computational & Data Science, Software Engineering
Programme Proposer:	Prof Mark Parsons, Dr Mark Bull, Mr Ben Morse

STAGE 1: CONSULTATION

Please confirm consultation with relevant stakeholders has taken place.

Stakeholder	**Yes**	**NA**
School Director of Professional Services (EPCC Director of Operations)	☒	☐
School Academic Administration Staff (EPCC Postgraduate Programmes Manager)	☒	☐
Information Services (including Academic Support Librarians)	☐	☒
Student Body (SSLC/Student representatives)	☒	☐
Partner School Staff (E.G. Joint Programmes/shared courses etc)	☒	☐
Employers	☐	☒
Industry and Professional Bodies	☐	☒
External Consultation	☐	☒

Please provide a brief comment on the consultation process

Required to improve accuracy of reporting

Please provide a brief comment on the consultation process with External consultants

N/A

Stage 2 and 3 information previously submitted by Stuart Anderson, School of Informatics Director of Teaching

STAGE 2: SCHOOL BOARD OF STUDIES REVIEW AND APPROVAL

Confirmation of approval of the proposal at the School Board of Studies should be entered below.

Date of BoS: February 2020
Convener Name: Prof. Stuart Anderson
Comment and Approval (BoS Minute): *Please provide either a link to the minutes of the Board or a copy of the relevant text from the minutes.*

STAGE 3: HEAD OF SCHOOL REVIEW AND APPROVAL

Head of School: *Please print name*
Comment and Approval:
Signature:

STAGE 4: COLLEGE CURRICULUM APPROVAL BOARD REVIEW AND OUTCOME

Date of CCAB:	
Convener Name:	
Stage 1 Outcome (please select as appropriate)	
Permission to proceed to Stage 2	☐
Permission to proceed to Stage 2 with conditions	☐
Proposal rejected with recommendations	☐
Proposal rejected	☐

Comment:

Document Control

Date approved: Start date:	Amendments:	Date for next review: April 2018
Contact name & role: Matt Elliot	Department: College Academic Affairs	Email: Matt.Elliot@ed.ac.uk
If you require this document in an alternative format please email: deanqa@exseed.ed.ac.uk		