S.06-90

SIMON FRASER UNIVERSITY

Senate Committee on University Priorities
Memorandum

TO: Senate

FROM: John Waterhouse
Chair, SCUP
Vice President, Academic

RE: Centre for Operations Research & Decision Sciences (SCUP 06-28)

DATE: June 20, 2006

At its June 14, 2006 meeting SCUP reviewed and approved the proposal for the creation of the Centre for Operations Research and Decision Sciences (CORDS). This Centre will be a Schedule B Centre based at SFU Surrey.

Motion

That Senate approve and recommend to the Board of Governors the creation of the Centre for Operations Research and Decision Sciences (CORDS) as a Schedule B Centre.

encl.

c: A. Punnen

SIMON FRASER UNIVERSITY

MEMORANDUM
OFFICE OF VICE-PRESIDENT, RESEARCH

TO: Sarah Dench, Secretary
Senate Committee on University Planning (SCUP)

FROM: B. Mario Pinto
Vice-President, Research

RE: Centre for Operations Research and Decision Sciences (CORDS)

DATE: May 17, 2006

Attached is a proposal from Dr. Abraham Punnen, Department of Mathematics, for the establishment of the Centre for Operations Research and Decision Sciences (CORDS) as a Schedule B Centre.

The Governing Committee for Centres and Institutes recommends that the Centre be granted approval by SCUP. Once approved by SCUP, the proposal is to be forwarded to Senate, followed by submission to the Board of Governors.

Governing Committee:

Dr. John H. Waterhouse
Vice-President, Academic and Provost

Dr. B. Mario Pinto
Vice-President, Research

Attachment

C: Dr. Michael Plishke, Dean Faculty of Science
Dr. Abraham Punnen, Department of Mathematics
Dr. Tom Archibald, Chair, Department of Mathematics

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SIMON FRASER UNIVERSITY

DEAN OF SCIENCE

BURNABY, BRITISH COLUMBIA V5A 1S6
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April 7, 2006

Dr. B.M. Pinto
Vice President Research
Simon Fraser University
Burnaby, BC V5A 1S6

Dear Mario:

I write in support of Abraham Punnen's proposal to establish a Schedule B research center, the Center for Operations Research and Decision Sciences (CORDS), to be based at SFU-Surrey. Dr. Punnen's proposal is an ambitious one and has the potential to make SFU-Surrey much more visible, both locally and nationally. Operations Research is one of the priorities for the Faculty of Science at SFU-Surrey and we have already made three tenure track faculty positions available to the Department of Mathematics in this area.

Dr. Punnen has asked for secretarial support for the Centre for a three-year period. The Faculty will be creating a CUPE secretarial position at SFU-Surrey in the summer of 2006 and the person hired will be available to provide support to the Centre, as well as to other Science personnel at the Surrey campus. If more support is needed, I will be prepared to consider making a second secretarial position available.

The proposal anticipates that the Centre will be self-supporting after an interim period of perhaps three years. I consider this to be a likely scenario, given the opportunities for consulting that exist.

In summary, I can see no downside to this proposal and am strongly in favor of creating the center.

Yours sincerely,

Mike

Michael Plishke, Dean
Faculty of Scienc

c: Abraham Punnen
Tom Archibald

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SIMON FRASER UNIVERSITY SURREY

Abraham P Punnen, PhD
Professor of Operations Research
Department of Mathematics
14th Floor Central City Tower
13450 102nd AVE
Surrey. British Columbia
CANADA V3T 5X3

11 February 2006

Dr. Mario Pinto
Vice President Research
Simon Fraser University

Dr. John Waterhouse
Vice-President, Academic and Provost
Simon Fraser University

Dear Dr. Pinto and Dr. Waterhouse,

Attached please find my application for the creation a new research centre - Centre for Operations Research and Decision Sciences (CORDS) - at SFU Surrey. This is part of a major interdisciplinary effort in creating significant research strength at the Surrey campus, drawing expertise from various departments, supported by several recent hiring in Mathematics in the area of operation research.

I look forward to your support and help in making the centre a reality. Please let me know for any questions or comments.

Sincerely,

Abraham P Punnen

Telephone: 604 - 268 - 7611; Fax: 604 - 268 - 7085; E-mail: apunnen@sfu.ca; Web: http://www.math.sfu.ca

Application for the creation of a Schedule B research centre at the Surrey campus: "Centre for Operations Research and Decision Sciences (CORDS)"

1 Introduction

Operations research, the science of optimal decision making, is the discipline dealing with applications of advanced analytical techniques to choose better decisions among feasible alternatives or to generate the set of feasible alternatives itself. Although the discipline of operations research has its roots in planning military operations during the Second World War, modern day applications of operations research goes far beyond assistance in military missions. Operations research techniques have been successfully applied in various day to day operations in industry and government including, routing and scheduling in the transportation industry; production planning in manufacturing; pickup, delivery, storage, and retrieval of containers at container terminals; supply chain management; radiation therapy treatment planning in cancer care; telecommunication network design; environmental management, forecasting and queuing; financial planning, cluster analysis for medical decision making and biological networks in medicine. Peripheral areas of applications of the discipline include cost-benefit analysis, policy analysis, and data mining. Thus the relevance of operations research in the nation's economy is undisputable.

At SFU, expertise in operations research is spread over various faculties and departments such as Business, Computing Science, Engineering, Interactive Arts and Technology, Mathematics, Resource and Environmental management, and Statistics and Actuarial Science. The Mathematics department recently decided to focus its activities in Surrey centered on operations research and made a senior professor level appointment and two assistant professor level appointments. The assistant professors will join in September 2006 and the department is planning two more appointments in the area of operations research for the Surrey campus. The Business faculty has strength in Management Science and is planning to hire in the area of supply chain management and computing science has significant strength in the area of algorithms. Thus SFU in general and SFU Surrey in particular has acquired significant strength in operations research and is well positioned to take a leadership role in operations research education in Canada and to undertake challenging and complex research projects of fundamental importance or of applied nature in the area of operations research. In addition to fundamental research, significant opportunities for consulting activities with industry and governmental entities also exist in the field of operations research.

To reinforce and strengthen high quality research in operations research at SFU

and make SFU a vital focal point in the area of operations research education and research, we propose the creation of a Schedule B centre called *Centre for Operations Research and Decision Sciences* (CORDS) to be located on the Surrey campus with a university wide mandate. The Centre will invariably fortify the research profile of the Surrey campus and assist further development of the campus. Many colleagues from various departments at the Burnaby campus kindly offered support and active involvement in this endeavor and the Centre will be an exemplary interdisciplinary collaborative research unit between the two campuses and across various departments. It is noteworthy that similar centers exist at other prominent research universities across the globe. These include the operations research centre at MIT, Cambridge; Centre for Operations Research and Econometrics, Universite Catholique de Louvain, Belgium; Supply chain and logistics engineering center, University of Florida; Centre for research in transportation, University of Montreal; CASTLE lab, Princeton University; RUTCOR at the Rutgers University, to cite a few. We have research ties with many of these centers and the successful operations of these fine research institutions provide renewed enthusiasm to undertake this major initiative at SFU Surrey.

2 Computing Facilities

We are in the process of creating a "Computational Optimization Laboratory" at SFU Surrey. Space for the lab is already allocated. A two processor SUN Blade 2000 workstation from the NSERC Equipment grant of Abraham Punnen and another single Xeon processor Dell work station, which also belongs to Abraham Punnen, will be located in the lab. We also plan to acquire about 10 computers which will be used as the front end to access these workstations and the highly parallel WestGrid network and other computing facilities within SFU and elsewhere. The lab will be equipped with state of the art software and a library of software manuals and reference books for operations research applications. Some of the software licenses and manuals are already in place. The computational optimization laboratory will be the primary computing facility dedicated to operations research applications. Other computing labs at various locations in both Burnaby and Surrey will also have access to operations research applications software since the Centre will have members from various departments and research groups.

3 Specific Activities

The activities of the Centre are planned in such a way that the Centre will be self supporting in about three years time. We hope to get initial secretarial support from the department/Dean to sustain the interim developmental period, which will not exceed three years. There are no other additional resource

implications. The current activities planned include attracting major research contracts and consultancy works, organize seminars and workshops for industry, government, and academia and organize short-term non-credit courses. As a long term goal, subject to approval of participating departments, the Centre also plans to coordinate interdisciplinary M.Sc and PhD programs in the area of operations research.

Training Aspects The Centre will be involved in training graduate students and post-doctoral fellows. It will also be a place for hosting distinguished visiting scholars for short durations.

Major Research Contracts: Another primary objective of the Centre is to attract external research grants. This includes various grants from NSERC, CIHR, MITACS, Federal and provincial governments, other funding agencies and direct industry research contracts. The Centre, as a collection of individuals from various departments, with complementary expertise under a common umbrella provides additional edge in obtaining and completing group projects. This will be a significant source of income for the Centre.

Consultancy Work: These are short projects with immediate applications of existing knowledge. Again, this will be a revenue source for the Centre.

Seminars and Workshops: Seminars and workshops provide a forum for exchange of scientific ideas. We have already started a major international symposium series, the first of which was held at SFU on January 27, 2006. We plan to continue this each year. Further, we have initiated a weekly operations research seminar series on the Surrey campus. Once this Centre is established, the seminar series will be coordinated by the Centre.

Non-Credit Courses: We also plan to conduct short-term non-credit courses in relevant areas of operations research for specialists in industry and other interested general public. This will be another source of income for the Centre.

Software Development The Centre plans to develop optimization software for academic as well as Industrial use. Academic software development will be under open source structure and work closely with COIN-OR (Computational infrastructure for operations research) , an international body for open source software in Operations Research. Lou Hafer, director of COIN-OR will also lead the software development activities of the Centre.

Other advantages: The contacts and visibility generated through the activities of the Centre will be valuable assets for SFU with indirect benefits.

Long term goals: As a long term objective, subject to the approval of participating departments, the Centre plans to facilitate interdisciplinary graduate programs in operations research. This is a major deviation from the activities of

other research centers on campus. This activity is modeled after a very successful program at the operations Research center, MIT, Cambridge. Plans include a dual M.Sc. degree identical to the dual degree M.Sc. program of the operations research center at MIT, Cambridge with their collaborating departments and M.Sc and PhD programs in Operations Research.

4 Centre Governance

Schedule: CORDS shall be a Schedule B university centre under the authority of the Vice President, Research.

Location: CORDS shall be located at the Surrey campus of SFU.

Administrative Officer: Vice President, Research at SFU shall be the administrative officer for CORDS.

Director: CORDS shall have a director who shall be elected for a renewable three-year term. Associate directors may be appointed by the Director in consultation with the membership. Day-to-day administration of CORDS shall be the responsibility of the Director. The Director shall exercise the rights of the Centre under the terms of Section 5.1 of R 40.01 and shall meet the obligations set out in Section 5.2 of R 40.01.

Steering Committee: The Steering Committee consists of the Director and four additional faculty members of SFU, elected from the general membership of the Centre. The Director of the centre shall call meetings of the Steering Committee. All meetings of the Steering Committee shall be chaired by the Director. The membership on the Steering Committee shall represent at least three different departments or faculties, whenever possible. The Director, with majority vote of the Steering Committee could appoint additional members to the Steering Committee, from outside SFU, such as reputable industries or government agencies. These appointees shall have voting rights in the Steering Committee meetings and the number of these external members on the Steering Committee shall not be more than two at any given time. The term of a member on the Steering Committee shall be for three years.

Membership: The Director and Associate Director(s) of the Centre shall be regular employees of SFU. Since one of the long term goals of the Centre is to coordinate a graduate program in Operations Research, regular membership in the Centre shall be available only to faculty members of Simon Fraser University, including adjunct professors and lecturers. Regular membership in the Centre shall be obtained through a majority vote of the Steering Committee following application to the Director. Associate memberships, which entitle individuals to all the benefits of regular membership, except a vote in Centre proceedings

dealing with academic matters, shall be available to other individuals with an interest in operations research. Associate members must be approved in the same fashion as regular members. Only regular members of the Centre are eligible to participate in discussions and meetings related to academic matters. Additional categories of membership may be established by the Director in consultation with the membership and with the approval of the Administrative Officer.

Changes: Any additions and/or changes in the governance procedures outlined above shall be made with majority approval of the regular members, the Steering Committee and the Administrative Officer.

Initial Membership: The initial membership of the Centre for Operations Research and Decision Sciences will include the following individuals, who have agreed to participate:

Initial Director: Abraham P Punnen (Mathematics, Surrey)

Initial Steering Committee: (Bojan Mohar, Lou Hafer, Kristine Rothley, Randall Pyke)

Members:

1. Binay Battacharya (Computer Science, Burnaby)
2. Petra Berenbrink (Computer Science, Burnaby)
3. Funda Ergun (Computer Science, Burnaby)
4. Luis Goddyn (Mathematics, Burnaby)
5. Arvind Gupta (Computer Science, Burnaby)
6. Lou Hafer (Computer Science, Burnaby)
7. Pavol Hell (Computer Science, Burnaby)
8. Natalia Kouzniak (Mathematics, Surrey)
9. Ramesh Krishnamurty (Computer Science, Burnaby)
10. Vive Kumar (SIAT, Surrey)
11. Ernie Love (Business Administration, Burnaby)
12. Zhaosong Lu (Mathematics, Surrey, from September,2006)
13. Bojan Mohar (Mathematics, Burnaby)
14. Adam Oberman (Matheamtics, Burnaby)

15. Abraham P Punnen (Mathematics, Surrey)
16. Randall Pyke (Mathematics, Surrey)
17. Kristine Rothley (REM, Burnaby)
18. S. Cenk Sahinalp (Computer Science, Burnaby)
19. Mehrdad Saif (Engineering, Burnaby)
20. Tamon Stephen(Mathematics, Surrey, from September 2006)

Associate Members: Various associate members from other universities, NRC, and local industries shall join as associate members.

Library Assessment for Centre for Operations Research and Decision Sciences (CORDS) June 2, 2006

This is the Library's report on the proposed Centre for Operations Research and Decision Sciences.

The SFU Library supports the establishment of this Centre as outlined in the proposal. The SFU Library is actively collecting in the areas of Operations Research at the Burnaby Campus. As the Centre will be located on the SFU Surrey Campus, there are library costs associated with it. There are several subject headings in the Blackwell's profile (SFU's major book wholesaler) that will cover most of the published materials to support research at this centre. The main subject heading is (6380) Operations Research, which generates approximately 30 new titles / year at an average book price of $120. It is recommended that the Surrey Library add this heading to its book approval profile. Doing so will enable the comprehensive collecting required to maintain an upper-level research collection suitable for this Centre.

Total library cost:

$2,000 one-time money to build a core collection
$3,600 / year ongoing money

The Library will request funding from existing allocations designated for the Surrey campus. There are no costs to the Centre, or the Department of Mathematics.

Maintained by: Megan Crouch [mcrouch@sfu.ca]
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