PROPOSAL FOR IN-HOUSE FORTRAN INSTRUCTION FOR TANGELO AEROSPACE CORPORATION

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For
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Proposal

Introduction:

California State University Barstow is proud to offer courses for continuing education. Our computer science department will be able to provide the Fortran course requested by Tangelo Aerospace Corporation. We at Cal State Barstow have created a customized Fortran course to be taught in-house at Tangelo's Orange County facility. We have provided a detailed account of the course and all necessary information. The course will cover topics ranging from the basics of Fortran to the overhaul and upgrade of Fortran embedded systems. There will be a focus on the differences between Fortran 90 and Fortran 2003, and the process of examining and updating legacy code. Our proposed course will run 10 weeks, meeting twice a week for two hours each session. The course will be divided into a lecture portion, where software engineers learn new topics, and a lab section, where the ideas learned in lecture will be implemented. All attending software engineers will require access to a computer, and Tangelo will need to provide adequate resources for lecture and lab instruction. No text materials will be required, as free online Fortran resources are plentiful. A course overview, cost analysis, schedule, and a short instructor biography have included.

Course Overview:

Over the course of instruction, we will teach basic and intermediate Fortran, and will prepare software engineers for the overhaul and upgrade of embedded systems. The instruction will be held twice per week for 10 weeks for two hours each session. Meeting times will consist of an hour of instruction and an hour of lab time with a small break between. The course will cover the topics outlined in the course schedule, and will conclude with a comprehensive assessment. Software engineers will be expected to participate in class discussions and complete all lab exercises. Both Fortran 90 and Fortran 2003 will be covered in detail.

Tangelo Aerospace Corporation will be responsible for all required computer lab spaces, computers, and sample embedded systems. Software engineers may use personal hardware at Tangelo Aerospace's discretion.

During the course, all reference material will be accessible online from the Fortran Wiki, the ISO standards for Fortran 90 and Fortran 2003, and free materials provided in lecture and lab. There will be no requirement for software engineers to purchase any materials or text-books.

Fortran Wiki -
http://fortranwiki.org/fortran/show/HomePage

Fortran 90 Standard is available at -
ftp://ftp.nag.co.uk/sc22wg5/N001-N1100/N692.pdf

Fortran 2003 Standard is available at -
ftp://ftp.nag.co.uk/sc22wg5/N1601-N1650/N1601.pdf.gz

Cost analysis:

10 Week in-house instruction:

Fortan for Embedded Systems

Instructor fee:	(10 wk)	$ 12,000
Per-diem:		
Meals	- 20 * $36 = $720	
Mileage	- 20*2*30 mi. * $0.80 = $960	
Total	-	$ 1,680
Administrative fees:		$ 8,000
Total		$ 21,680

We at Cal State Barstow thank you for your consideration, and look forward to your response. For any questions or follow-up, contact details are listed below:

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Appendix 1 - Outline and Schedule for Course:

Over the course of 10 weeks, software engineers will be introduced to various sections of the Fortran programming language. Lecture will introduce new topics and explain various methods of solving problems with Fortran. The lab section will require software engineers to implement the concepts learned in lecture and create working solutions.

Week:	Lecture:	Lab:
1	Introduction to Fortran - Syntax and basics Fortran 90 vs Fortran 2003	Set-up Fortran workspace First Fortran Program
2	High/Low level Concepts Input/Output	Reading/writing to console Command line arguments
3	Computation Array operations and Pointers	Pointers and arrays User defined data types
4	Scoping and association Integrating C/other languages	Fortran and C together
5	Debugging	Code review Debugging existing code
6	Fortran 90 specific code	Software design Team projects
7	Fortran 2003 specific code	Reading legacy code Old vs New libraries
8	Embedded systems	Writing code for embedded systems
9	Embedded systems continued Overhaul and upgrade of existing software	Updating legacy systems with current libraries
10	Final points Student questions Summary and assessment	Complete embedded system project Look ahead at future of Fortran

Appendix 2 - Instructor Bio:

Dr. Steve Brule has been with Cal State Barstow for the past 7 years. Dr. Brule holds a BS in mathematics from Cal State Fullerton, an MS in computer science from USC, and he earned his PhD in computer science from Stanford University.

Before beginning his teaching career, Dr. Brule was the lead Software Engineer for AlgoTrade, a firm which implemented the majority of stock market trading software in the early 2000s. His team used C, Fortran, and COBOL to reduce trade latency in high-frequency trading, and they greatly improved the security of algorithmic trading. Over the past 4 years, Dr. Brule has conducted in-house training for 11 customized courses at 6 different firms.

In 2006, Dr. Brule was recognized on TIME's list of the world's 100 most influential people.