Cover Sheet: Request 11895

EAS4XXX Introduction to Computational Fluid Dynamics

Info

Process	Course|New|Ugrad/Pro
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Bruce Carroll bfc@ufl.edu
Created	10/2/2017 2:54:47 PM
Updated	1/25/2018 4:04:16 PM
Description of request	General theory, skepticism, and practice of computational fluid dynamics. Computational grids and generation, boundary conditions, fluid dynamics, numerical methods, visualization, turbulence modelling, and various special topics.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	ENG - Mechanical and Aerospace Engineering 011902000	Bruce Carroll		10/2/2017
No document changes					
College	Conditionally Approved	ENG - College of Engineering	Heidi Dublin	Conditionally Approved by HWCOE Curriculum Committee--Committee requested that you update the grading percentages in the syllabus	11/29/2017
No document changes					
Department	Approved	ENG - Mechanical and Aerospace Engineering 011902000	Bruce Carroll	Grading percentages updated	11/30/2017
No document changes					
College	Approved	ENG - College of Engineering	Heidi Dublin	Approved by HWCOE Curriculum Committee and Faculty Council.	1/25/2018
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			1/25/2018
No document changes					
Statewide Course Numbering System					
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					

Step	Status	Group	User	Comment	Updated
College Notified					

No document changes

Course|New for request 11895

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Description of request: General theory, skepticism, and practice of computational fluid dynamics. Computational grids and generation, boundary conditions, fluid dynamics, numerical methods, visualization, turbulence modelling, and various special topics.
Submitter: Bruce Carroll bfc@ufl.edu
Created: 11/30/2017 1:02:17 PM
Form version: 2

Responses

Recommended Prefix EAS
Course Level 4
Number XXX
Category of Instruction Advanced
Lab Code None
Course Title Introduction to Computational Fluid Dynamics
Transcript Title Intro Comp Fluid Dyn
Degree Type Baccalaureate

Delivery Method(s) On-Campus
Co-Listing No

Effective Term Earliest Available
Effective Year Earliest Available
Rotating Topic? No
Repeatable Credit? No

Amount of Credit 3

S/U Only? No
Contact Type Regularly Scheduled
Weekly Contact Hours 3
Course Description General theory, skepticism, and practice of computational fluid dynamics. Computational grids and generation, boundary conditions, fluid dynamics, numerical methods, visualization, turbulence modelling, and various special topics.
Prerequisites EAS4101 or EGN3353C
Co-requisites None
Rationale and Placement in Curriculum Provides coverage of computational tools commonly used in engineering practice for problems in aerodynamics and fluid dynamics. The course is suitable as a technical elective for seniors in aerospace engineering and mechanical engineering.
Course Objectives This course introduces students to the general theories, numerical algorithms, and processes of computational fluid dynamics. The main objectives are to understand the pre-process that includes the definition of the problem and grid generation, the solver, and the post-process that includes analysis of the results. The students will learn to interpret computational fluid dynamics results and develop skepticism that is balanced by verification and validation techniques. Throughout the course concepts will be illustrated through the use of one popular commercial computational fluid dynamics computer program. The students will have fundamental knowledge of boundary conditions, grid generation, solvers, turbulence modelling, visualization, numerical methods, and a variety of special topics at the termination of the course.
Course Textbook(s) and/or Other Assigned Reading Müller, J., `Essentials of Computational Fluid Dynamics,' CRC Pressure, Taylor & Francis Group, 2016. ISBN: 978-1-4822-2730-7
Weekly Schedule of Topics Week 1: Introduction
Week 2: Introduction cont. and Grid Generation
Week 3: Grid Generation
Week 4: Fluid Dynamics
Week 5: Fluid Dynamics

Week 6: Numerics
Week 7: Numerics and Midterm Exam
Week 8: Visualization
Week 9: Visualization
Week 10: Turbulence Modelling
Week 11: Turbulence Modelling
Week 12: Parallel Computing
Week 13: Special Topics
Week 14: Project Presentations
Week 15: Project Presentations
Final Exam

Links and Policies Regular attendance is strongly encourages. Excused absences and makeup work are allowed consistent with university policies in the undergraduate catalog https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx).

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, https://www.dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu/evals. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/.

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the professor or TAs in this class.

Important Health and Wellness Contact Information:
• U Matter, We Care: If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student. • Counseling and Wellness Center: http://www.counseling.ufl.edu/cwc, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies. • Sexual Assault Recovery Services (SARS), Student Health Care Center, 392-1161. • University Police Department at 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Grading Scheme Homework 25%
Midterm 25%
Final Exam 25%
Project 25%

Percentage Range
From 93.33 to 100.00 A (4.00)
From 90.00 to 93.32 A- (3.67)
From 86.67 to 89.99 B+ (3.33)
From 83.33 to 86.66 B (3.00)
From 80.00 to 83.32 B- (2.67)
From 76.67 to 79.99 C+ (2.33)
From 73.33 to 76.66 C (2.00)
From 70.00 to 73.32 C- (1.67)
From 66.67 to 69.99 D+ (1.33)
From 63.33 to 66.66 D (1.00)

From 60.00 to 63.32 D- (0.67)
From 00.00 to 59.99 E (0.00)
Instructor(s) Steven Miller