

**2011-12**

EVALUATION OF EOC4804 SENIOR OCEAN ENGINEERING DESIGN PROJECT

**COMPLETED EVALUATION FORMS**

**Project Title: VBASS – Vision Based Unmanned Surface Vehicle**

**EVALUATORS (Internal)**

1. Dr. Manhar Dhanak, Department of Ocean and Mechanical Engineering, FAU
2. Dr. Stewart Glegg, Department of Ocean and Mechanical Engineering, FAU
3. Dr. Edgar An, Department of Ocean and Mechanical Engineering, FAU
4. Dr. R. Granata, Department of Ocean and Mechanical Engineering, FAU
5. Dr. P. Beaujean, Department of Ocean and Mechanical Engineering, FAU
6. Dr. F Presuel-Moreno, Department of Ocean and Mechanical Engineering, FAU
7. Dr. M. Madani, Adjunct Faculty, Department of Ocean and Mechanical Engineering, FAU
8. Dr. J. vanZwieten, SNMREC, Florida Atlantic University
9. D. Briggs, Adjunct Faculty (retd.) Department of Ocean and Mechanical Engineering, FAU
10. Dr. Karl von Ellenrieder (responsible for individual assessments and course grading)

**EVALUATORS (External – Industry & Navy)**

11. Kevin Meier, Naval Surface Warfare Center, Carderock Division, US Navy
12. Bill Venezia, Naval Surface Warfare Center, Carderock Division, US Navy
13. Patric Hudson, Naval Surface Warfare Center, Carderock Division, US Navy
14. Eric Dykes, Naval Surface Warfare Center, Carderock Division, US Navy
15. Dr. Frank Leban, Office of Naval Research, US Navy
16. Dr. Paul Rushfeldt, Lockheed Martin Corporation
17. Joe Lambiote, Lockheed Martin Corporation
18. Floria Clements, Lockheed Martin Corporation
19. Nicolas Agostinelli, Lockheed Martin Corporation
20. Jim Whitney, Lockheed Martin Corporation

(To be completed by Industry and Navy/ONR attendees/representatives and OME/College faculty attending the presentation)

### **EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN**

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: **VBASS Vision based USV**

Evaluator's Name and Affiliation (Please Print): Manhar Dhanak

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

Item	Evaluation		
	Poor	Satisfactory	Excellent
a. An ability to apply knowledge of mathematics, science, and engineering		✓	
b. An ability to design and construct experiments, as well as to analyze and interpret data			✓
c. An ability to design a system, component, or process to meet desired needs			✓
d. An ability to function on multi-disciplinary teams			✓
e. An ability to identify, formulate, and solve engineering problems		✓	
f. An understanding of professional and ethical responsibility		✓	
g. An ability to communicate effectively			✓
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context		✓	
i. A recognition of the need for and an ability to engage in lifelong learning		✓	
j. A knowledge of contemporary issues		✓	
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice		✓	

Additional Comments: (Continue on the other side, if more space is needed.)

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): Stewart Glegg

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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	Poor	Satisfactory	Excellent
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b. An ability to design and construct experiments, as well as to analyze and interpret data			✗
c. An ability to design a system, component, or process to meet desired needs			✗
d. An ability to function on multi-disciplinary teams			✗
e. An ability to identify, formulate, and solve engineering problems			✗
f. An understanding of professional and ethical responsibility			✗
g. An ability to communicate effectively			✗
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context			
i. A recognition of the need for and an ability to engage in lifelong learning			✗
j. A knowledge of contemporary issues			✗
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			✗

Additional Comments: (Continue on the other side, if more space is needed.)

Software Development is probably  
too challenging for the time  
available.

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): Edgar An

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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f. An understanding of professional and ethical responsibility			✓
g. An ability to communicate effectively			✓
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Additional Comments: (Continue on the other side, if more space is needed.)

\* strong system integration achievements.  
\* Navigating around buoys was partially completed. Tremendous amount of software effort

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Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): R. GRANATA

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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THIS PROJECT WAS BALANCED (RELATIVE TO OTHER TWO).

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): Beaujean FAU

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: **VBASS Vision based USV**

Evaluator's Name and Affiliation (Please Print): Francisco Presuel

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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i. A recognition of the need for and an ability to engage in lifelong learning		✓	
j. A knowledge of contemporary issues			
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Additional Comments: (Continue on the other side, if more space is needed.)

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): Mahmoud madani FAU

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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e. An ability to identify, formulate, and solve engineering problems		✓	
f. An understanding of professional and ethical responsibility			✓
g. An ability to communicate effectively			✓
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context			✓
i. A recognition of the need for and an ability to engage in lifelong learning			✓
j. A knowledge of contemporary issues	✓		
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			✓

Additional Comments: (Continue on the other side, if more space is needed.)

*Overall they did an excellent job and well presented.*

(To be completed by Industry and Navy/ONR attendees/representatives and OME/College faculty attending the presentation)

## **EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN**

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: **VBASS Vision based USV**

Evaluator's Name and Affiliation (Please Print): James VanZwieten SNMREC

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

Item	Evaluation		
	Poor	Satisfactory	Excellent
a. An ability to apply knowledge of mathematics, science, and engineering			X
b. An ability to design and construct experiments, as well as to analyze and interpret data			X
c. An ability to design a system, component, or process to meet desired needs			X
d. An ability to function on multi-disciplinary teams			X
e. An ability to identify, formulate, and solve engineering problems			X
f. An understanding of professional and ethical responsibility			X
g. An ability to communicate effectively			X
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context			X
i. A recognition of the need for and an ability to engage in lifelong learning			?
j. A knowledge of contemporary issues			X
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			X

Additional Comments: (Continue on the other side, if more space is needed.)

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): Douglas Briggs

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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c. An ability to design a system, component, or process to meet desired needs			✓
d. An ability to function on multi-disciplinary teams			✓
e. An ability to identify, formulate, and solve engineering problems			✓
f. An understanding of professional and ethical responsibility		(Not Determined)	
g. An ability to communicate effectively			✓
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context			✓
i. A recognition of the need for and an ability to engage in lifelong learning		(Not Determined)	
j. A knowledge of contemporary issues			✓
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			✓

Additional Comments: (Continue on the other side, if more space is needed.)

*Presentation was very good by all presenters, Mario's presentation had too much detail.*

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

RETIRERED LOCKHEED  
MARTIN

Evaluator's Name and Affiliation (Please Print): PAUL RUSHFIELDT - SELF

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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b. An ability to design and construct experiments, as well as to analyze and interpret data			X
c. An ability to design a system, component, or process to meet desired needs			X
d. An ability to function on multi-disciplinary teams			X
e. An ability to identify, formulate, and solve engineering problems			X
f. An understanding of professional and ethical responsibility			X
g. An ability to communicate effectively			X
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context			X
i. A recognition of the need for and an ability to engage in lifelong learning			X
j. A knowledge of contemporary issues			X
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Additional Comments: (Continue on the other side, if more space is needed.)

- OUTSTANDING TEAMWORK
- EXCELLENT ~~THE~~ TECHNICAL DESIGN
- STRONG SYSTEMS ENGINEERING
- INNOVATIVE SELECTION OF COMPONENTS

THE SENIOR DESIGN PROGRAM  
IS OUTSTANDING

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## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: **VBASS Vision based USV**

Evaluator's Name and Affiliation (Please Print): Joe Lambiotte, Lockheed Martin

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

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## **EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN**

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: **VBASS Vision based USV**

Evaluator's Name and Affiliation (Please Print): Tim Whitney - Lockheed Martin

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j. A knowledge of contemporary issues			✓
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			✓

Additional Comments: (Continue on the other side, if more space is needed.)

*Cool demonstration of system integration and design practice.  
Would like to have seen further characterization of the propulsion system to understand why predictions were not accurate.*

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## **EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN**

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: **VBASS Vision based USV**

Evaluator's Name and Affiliation (Please Print): Nicolas Agostinelli (Lockheed Martin)

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Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): Floria Clements/DEA/ium/LMco

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Excellent Presentation. - use of visual, proper intro to topics and speakers, really paid attention to detail making the presentation exceed my expectation for professionalism for all team members. Definitely recommend adopting this teams format of including the presenters name on each slide.

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Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): Kevin Meier NSWC CD

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*Good job on a complex project*

*Thanks  
Kelly!*

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## **EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN**

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: **VBASS Vision based USV**

Evaluator's Name and Affiliation (Please Print): Eric Dykes, *Naval Surface Warfare Center - Carderock*

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Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): William A. Venezia

*Naval Surface  
Warfare Center  
Carderock Division*

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k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			✓

Additional Comments: (Continue on the other side, if more space is needed.)

*Emilia Kawahima did an outstanding job of presenting theoretical calculations, reduction to practice, and the associated design cycle for the propeller and propulsion. (Mechanical/Hydrodynamic)*

*Joe Alderton presented the propulsion system (electrical/mechanical) his presentation clearly demonstrated a working knowledge of designing & testing his components within the overall system*

*The team effort was outstanding! The work accomplished could only be done by a functional, well educated team!*

*I asked a question to draw this out*

(To be completed by Industry and Navy/ONR attendees/representatives and OME/College faculty attending the presentation)

## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): PATRICK HUDSON, NSWC CARDEROCK

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

Item	Evaluation		
	Poor	Satisfactory	Excellent
a. An ability to apply knowledge of mathematics, science, and engineering			✗
b. An ability to design and construct experiments, as well as to analyze and interpret data			✗
c. An ability to design a system, component, or process to meet desired needs			✗
d. An ability to function on multi-disciplinary teams			✗
e. An ability to identify, formulate, and solve engineering problems			✗
f. An understanding of professional and ethical responsibility (e.g. NEED FOR REMOTE EMERGENCY RESPONSIBILITY <i>KILL SWITCH</i> )			✗
g. An ability to communicate effectively			✗
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context (e.g. NEED FOR AUTONOMOUS VEHICLES TO PERFORM DANGEROUS TASKS)			✗
i. A recognition of the need for and an ability to engage in lifelong learning (e.g. SELF-MUGHT SOFTWARE PROGRAMMING)			✗
j. A knowledge of contemporary issues			✗
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			✗

Additional Comments: (Continue on the other side, if more space is needed.)

- OUTSTANDING JOB! GREAT APPLICATION OF BOTH SYSTEMS ENGINEERING METHODS AND SPECIFIC ENGINEERING DISCIPLINES
- USE OF STEREO VISION, COMPUTER VISION/RECOGNITION WAS VERY WELL DONE
- GREAT SPUR OF FUNCTIONS / RESPONSIBILITIES FOR A RELATIVELY LARGE TEAM
- IMPRESSIVE CONTROL DESIGN

(To be completed by Industry and Navy/ONR attendees/representatives and OME/College faculty attending the presentation)

## EVALUATION OF TEAM PERFORMANCE IN EOC 4804 OCEAN ENGINEERING DESIGN

Instructor: Karl von Ellenrieder

Semester: Spring 2012

Project Title: VBASS Vision based USV

Evaluator's Name and Affiliation (Please Print): DR FRANK LEBAN, ONR 333

Dear Evaluator: Based on the design accomplishments, team effort and project presentation, please rate the team's overall attainment of the following outcomes. **If any of the outcome(s) cannot be evaluated based on the available information, you may leave those unevaluated.** Any additional comments are welcomed. Please return the completed forms to Dr. Karl von Ellenrieder. Thanks!

Item	Evaluation		
	Poor	Satisfactory	Excellent
a. An ability to apply knowledge of mathematics, science, and engineering			X
b. An ability to design and construct experiments, as well as to analyze and interpret data		X	
c. An ability to design a system, component, or process to meet desired needs			X
d. An ability to function on multi-disciplinary teams			X
e. An ability to identify, formulate, and solve engineering problems			X
f. An understanding of professional and ethical responsibility		X	
g. An ability to communicate effectively		X	
h. The broad education necessary to understand the impact of engineering solutions in a global and societal context		X	
i. A recognition of the need for and an ability to engage in lifelong learning		X	
j. A knowledge of contemporary issues		X	
k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice			X

Additional Comments: (Continue on the other side, if more space is needed.)

f. ~~No information was presented that pertained to ethical responsibility.~~

b. Data analysis as presented was pretty basic - for instance no discussion of error budgets and difference between deterministic and stochastic sources of error.

Team leadership and member interaction appeared to be excellent.

g. Public speaking skills while good overall - varied across team members.