FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL[1]

DEPARTMENT: CEECS	COLLEGE: ENGINEERING AND COMPUTER SCIENCE

RECOMMENDED COURSE IDENTIFICATION: 5714

PREFIX _COT_ **COURSE NUMBER** ~~555X~~ **LAB CODE** (L or C) _____

(*TO OBTAIN A COURSE NUMBER, CONTACT MJENNING@FAU.EDU*)

COMPLETE COURSE TITLE: AUTO CODE GENERATION

EFFECTIVE DATE
(first term course will be offered)
OFFERED TWICE AS PART OF A SPECIAL TOPIC COURSE AS OF FALL 2013

CREDITS[2]:3 | **TEXTBOOK INFORMATION:** (1) EMF Eclipse Modeling Framework, 2nd edition, by D. Steinberg, F. Budinskly, M. Paternostro, and E. Merks, Addision-Wesley, 2009.

GRADING (*SELECT ONLY ONE GRADING OPTION*): **REGULAR** __X____ **SATISFACTORY/UNSATISFACTORY** _____

COURSE DESCRIPTION, NO MORE THAN THREE LINES: Software tool and library development for modern applications using the MVC (model-view- control) paradigm; use of Java, XML, and UML, to facilitate rapid development of optimized applications. Use of Eclipse Modeling Framework (EMF) to generate code easily.

PREREQUISITES *: Graduate or senior undergraduate student in computer science and engineering. Familiarity with Java, XML and UML desirable, but will be covered in an accelerated manner.	COREQUISITES*: NONE	REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*: GRADUATE AND SENIOR UNDERGRADUATES IN COMPUTER ENGINEERING AND COMPUTER SCIENCE (ENGINEERING). IF NOT, CONSENT OF INSTRUCTOR

* PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: PHD OR GRADUATE FACULTY STANDING

Faculty contact, email and complete phone number: Ravi Shankar, shankar@fau.edu, 7-3470	Please consult and list departments that might be affected by the new course and attach comments.[3] NA

Approved by:	Date:	1. **Syllabus** must be attached; see guidelines for requirements: *www.fau.edu/provost/files/course syllabus.2011.pdf*
Department Chair: *Nurgun Erdol*	11/27/13	
College Curriculum Chair:	11/27/13	
College Dean:	12/2/2013	2. Review **Provost Memorandum: Definition of a Credit Hour** *www.fau.edu/provost/files/Definition_ Credit_Hour_Memo_2012.pdf*
UGPC Chair:	1/22/14	
Graduate College Dean:	1-29-14	
UFS President:		3. **Consent** from affected departments (attach if necessary)
Provost:		

Email this form and syllabus to *UGPC@fau.edu* **one week before** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

1. Course title/number, number of credit hours	
Auto Code Generation COT ~~5xxx~~ **5714**	3 credit hours

2. Course prerequisites, co requisites, and where the course fits in the program of study
Prerequisites: Graduate or senior undergraduate student in computer science and engineering. Familiarity with Java, XML and UML desirable, but will be covered in an accelerated manner.

3. Course logistics
Term: TBA The course will explore ways to incorporate tools, methodologies, and libraries to rapidly develop optimized MVC (model-view-control) applications. The course will start with engineering specifications and map them to Java/XML/UML to facilitate rapid application development. We will use a state-of-the-art framework (Eclipse Modeling Framework) to capture this essential information and generate code (semi) automatically. Students will undertake a specific App development.

4. Instructor contact information	
Instructor's name *Office address* *Office Hours* *Contact telephone number* *Email address*	Dr. R. Shankar, Professor Engineering East (EG-96) Bldg., Room 513 TBA 561-297-3470 shankar@fau.edu

5. TA contact information **None**	
None	

6. Course description	

Software tool and library development for modern applications using the MVC (model-view- control) paradigm; use of Java, XML, and UML, to facilitate rapid development of optimized applications. Use of Eclipse Modeling Framework (EMF) to generate code easily.

7. Course objectives/student learning outcomes/program outcomes	
Course objectives	This course is designed to help graduate students develop research skills as pertinent to software and systems engineering. We use open source tools (Eclipse and EMF) and languages. Thus, the source code and flow are available for inspection and adoption, so one can build advanced applications beyond one's own skills and knowledge. EMF will facilitate the process (but is also an evolving platform).

8. Course evaluation method			
Quizzes (6, choose 4)	20%	(on background material)	
Midterm Exam (around week 6)	20%	(on background material)	
Project Assignments (4) , Week 6 on	40%	(on proposal and interim reports)	
Final Project Demo and Report	20%	(video/live Demo and Report)	
Bonus: MVC Community Help	10%	(via blogs, tutorials & links)	

9. Course grading scale

Grading Scale: It will not be based on a curve. Expected distribution is given below:
90 and above: "A", 85-89: "A-", 80-84: "B+", 75-79: "B", 70-74 : "B-", 65-69: "C+", 60-64: "C", 55-59: "C-", 50-54: "D+", 45-49: "D", 40-44: "D-", 39 and below: "F."

10. Policy on makeup tests, late work, and incompletes

There is a mid-term test in this course. The students will make a presentation on the project chosen at semester end.

A grace period of 1 week is allowed for submission of assignments. Two lowest score quizzes will be dropped.

A grade of *incomplete* will be assigned only in the case of solid evidence of medical or otherwise serious emergency situation.

11. Special course requirements

Eclipse has many plug-ins that students should study, and learn from the accepted methods and templates. Blogs will allow the students to learn from each other.

12. Classroom etiquette policy

Students have to use laptops in the class to conduct tool installation, training, programming, etc . Also, classes will be more problem solving oriented – you will be asked to read and try out tutorials ahead of time. There will be significant interaction among the students and the professor during the class room, on a basis to solve problems and gain deeper insight. This will be tested in a weekly quiz in the following week. So, have your laptop ready and be prepared to use it during the lectures. Here is a site with Net Etiquette rules: http://www.albion.com/netiquette/corerules.html - please familiarize yourself with it.

13. Disability policy statement

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.   URL To be added

14. Honor code policy

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at www.fau.edu/regulations/chapter4/4.001 Code of Academic Integrity.pdf

We will use mostly open source tools. Much code, tutorial, java docs, etc., are freely available at many sites on line, including our own, android.fau.edu, d.android.com, www.eclipse.org, and others. . The students will use open source tools and standard languages such as Java, XML, and UML in developing their flow. All of the open source community believes in free sharing of their intellectual contributions. We encourage the same of all our students. Maintain your blog sites, review others' blog sites, and find ways to help each other. Acknowledge any help you received from your colleagues and on-line resources. We have started uploading our projects to bitbucket, an open source community, and we will standardize

that in our future course offerings.

15. Required texts/reading
(1) EMF Eclipse Modeling Framework, 2nd edition, by D. Steinberg, F. Budinskly, M. Paternostro, and E. Merks, Addision-Wesley, 2009

16. Supplementary/recommended readings

www.eclipse.org

17. Course topical outline, including dates for exams/quizzes, papers, completion of reading

Lecture Topics and number of 80 minute lectures (in parentheses)
1. Background Material: Brief Intro to Java, XML, and UML (6 lectures)
2. Background Material: Introduction to Eclipse Modeling Framework (4 lectures)
3. Mid-term Exam: (1 lecture)
4. Model Editing with EMF.Edit (4 lectures)
5. Ecore Modeling Concepts (3 lectures)
6. Java, UML, and XML mapping to Ecore (4 lectures)
7. EMF and EMF.Edit Generaor Patterns (3 lectures)
8. Putting it all together: EMF for code generation (3 lectures)
9. Project: This will be based on your background and interest. A list of topics will be provided based on currently useful and relevant Apps. Completed projects are already posted at FAU websites.

Dates   Quizzes- During Weeks 3 to 12, about once per week
          Mid-Term exam – Week 6 (1 hour)
          Project Assignments – Weeks 8 to 11, one per week
          Design Report and Documentation – Due on last Friday of the Final Exam week
          Demo, Presentation, & Video – on Exam day at scheduled time (20 minutes)

18. Technical Resolution Policy - You will be using Blackboard tools for communication. On the Welcome page, once you log in, you have the option to Submit a Ticket (see on the left hand side) to the Online Support Center. They may also be reached at 561-297-3999. However, they will not be able to help you with the installation and use of the tool suite used in the class. First try the tutorials demonstrated in the class/ video taped ahead of time, and if you still have difficulties, feel free to contact Dr. Shankar.

19. Test Policy – (1) The Quizzes will be available on-line. These will typically require the use of tools, references, and resources to answer questions on programming, debugging, testing, application components, software engineering, system design, etc., as pertinent to that week's material covered and/or that week's project focus. These are expected to take about 1 hour to discus and respond. **(2)** The Mid Term exam will be one hour long and will be individual. It is meant to ensure that you understand the basic principles before you undertake App development. It will be open notes, open book, and available on-line over a 48 hour period. Questions will be drawn from a large pool of multiple choice and fill-in-the-blank types of questions. They will be randomly assigned to you when you sign in. You will be able to pause and continue the exam – but plan on being available continuously for about 1.5 hours, assuming you will take breaks in-between. It will not be timed. **(3)** The project assignments will help you develop your project in stages, viz., mind mapping, use cases, class diagrams, patterns, GUI, and report generation. Sufficient examples will be made available. If a presentation, they will last about 10 minutes per student. If a report, it probably will be about 7 to 10 slides/pages for the submission. **(4)** Design Report will be a 6 to 7 page report written in the style of a conference paper, which may get submitted to a conference. Documentation is expected to document all the work accomplished (slides, assets, code, test suites, demo, etc.,) so we have all the material to improve upon it. These are due at the end of the semester, three days before the grades are to be posted. **(5)** Demo, Presentation, and Video – These are

due on the final exam day at the exam time – you will make a 10 minute presentation on campus or remotely. **Final Note: We expect to assign some extra points to you if you provide constructive ideas / useful resources for other students. This help is welcome during the semester too – for example, you might find a new good tutorial on a particular aspect. Post it at the Blackboard discussion site and get extra points. We call this "MVC Community Service" in our grading scheme. This is worth 10% of the grade, as bonus.**

20. Other Important Information - This may be a distance learning/remote course with strong emphasis on projects.

I have prepared a list of FAQs under the title "Prerequisites and Expectations." It is posted on the 'Start Here' page of the Blackboard (BB) site. Please post your questions/concerns there. I will respond soon after. We also have started using LinkedIn for your community interaction. This may replace the BB for sharing information. We have also started using bitbucket to help you share your App with the open source community.

21. Technology Requirements:
- **Eclipse Modeling Framework - http://www.eclipse.org/modeling/emf/**