Cover Sheet: Request 10782

DIG4XXX Wearable and Mobile App Development

Info

Process	Course|New|Ugrad/Pro
Status	Pending
Submitter	Klepacki,Phillip J pklepacki@arts.ufl.edu
Created	2/17/2016 10:20:21 AM
Updated	3/11/2016 10:10:31 AM
Description	This course covers software development protocols for wearable and mobile electronics such as head-mounted displays, watches and cellphones. Several embedded input/output interfaces will be studied, including position and orientation sensors, hand trackers, holographic and stereoscopic displays. The students will practice the material by developing prototype software applications for such devices.

Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CFA - Digital Worlds 015851001	Oliverio, James Charles		2/17/2016
No document changes					
College	Approved	CFA - College of Fine Arts	Schaefer, Edward E		2/18/2016
No document changes					
University Curriculum Committee	Comment	PV - University Curriculum Committee (UCC)	Case, Brandon	Added to the march agenda.	2/22/2016
No document changes					
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			2/22/2016
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					
College Notified					
No document changes					

Course|New for request 10782

Info

Request: DIG4XXX Wearable and Mobile App Development
Submitter: Klepacki,Phillip J pklepacki@arts.ufl.edu
Created: 2/17/2016 10:20:21 AM
Form version: 1

Responses

Recommended Prefix
Enter the three letter code indicating placement of course within the discipline (e.g., POS, ATR, ENC). Note that for new course proposals, in rare cases SCNS will assign a different prefix.

Response:
DIG

Course Level
Select the one digit code preceding the course number that indicates the course level at which the course is taught (e.g., 1=freshman, 2=sophomore, etc.).

Response:
4

Number
Enter the three digit code indicating the specific content of the course based on the SCNS taxonomy and course equivalency profiles. For new course requests, this may be XXX until SCNS assigns an appropriate number.

Response:
XXX

Lab Code
Enter the lab code to indicate whether the course is lecture only (None), lab only (L), or a combined lecture and lab (C).

Response:
None

Course Title
Enter the title of the course as it should appear in the Academic Catalog.

Response:
Wearable and Mobile App Development

Transcript Title

Enter the title that will appear in the transcript and the schedule of courses. Note that this must be limited to 21 characters (including spaces and punctuation).

Response:
WEARABLE & MOBILE APP

Effective Term
Select the requested term that the course will first be offered. Selecting "Earliest" will allow the course to be active in the earliest term after SCNS approval. If a specific term and year are selected, this should reflect the department's best projection. Courses cannot be implemented retroactively, and therefore the actual effective term cannot be prior to SCNS approval, which must be obtained prior to the first day of classes for the effective term. SCNS approval typically requires 2 to 6 weeks after approval of the course at UF.

Response:
Fall

Effective Year
Select the requested year that the course will first be offered. See preceding item for further information.

Response:
2016

Rotating Topic?
Select "Yes" if the course will have rotating (varying) topics in different terms. For rotating topics courses, the course title in the Schedule of Courses and the transcript can vary with the topic.

Response:
No

Amount of Credit
Select the number of credits awarded to the student upon successful completion, or select "Variable" if the course will be offered with variable credit and then indicate the minimum and maximum credits per section. Note that credit hours are regulated by Rule 6A-10.033, FAC. If you select "Variable" for the amount of credit, additional fields will appear in which to indicate the minimum and maximum number of total credits.

Response:
3

Repeatable Credit?
Select "Yes" if the course may be repeated for credit. Some courses, such as independent study courses, will have rotating (variable) topics. Students may be allowed to repeat these courses provided the content is different.

Response:

No

S/U Only?
Select "Yes" if all students should be graded as S/U in the course. Note that each course must be entered into the UF curriculum inventory as letter-graded or S/U. A course may not have both options. However, letter-graded courses allow students to take the course S/U with instructor permission.

Response:
No

Contact Type
Select the best option to describe course contact type. This selection determines whether base hours or headcount hours will be used to determine the total contact hours per credit hour. Note that the headcount hour options are for courses that involve contact between the student and the professor on an individual basis.

Response:
Regularly Scheduled

- *Regularly Scheduled [base hr]*
- *Thesis/Dissertation Supervision [1.0 headcount hr]*
- *Directed Individual Studies [0.5 headcount hr]*
- *Supervision of Student Interns [0.8 headcount hr]*
- *Supervision of Teaching/Research [0.5 headcount hr]*
- *Supervision of Cooperative Education [0.8 headcount hr]*

Contact the Office of Institutional Planning and Research (352-392-0456) with questions regarding contact type.

Degree Type
Select the type of degree program for which this course is intended.

Response:
Baccalaureate

Weekly Contact Hours
Indicate the number of hours faculty will have contact with students each week on average throughout the duration of the course.

Response:
3

Category of Instruction
Indicate whether the course is introductory, intermediate or advanced. Introductory courses are those that require no prerequisites and are general in nature. Intermediate courses require some

prior preparation in a related area. Advanced courses require specific competencies or knowledge relevant to the topic prior to enrollment.

Response:
Advanced

- *1000 and 2000 level = Introductory undergraduate*
- *3000 level = Intermediate undergraduate*
- *4000 level = Advanced undergraduate*
- *5000 level = Introductory graduate*
- *6000 level = Intermediate graduate*
- *7000 level = Advanced graduate*

4000/5000 and 4000/6000 levels = Joint undergraduate/graduate (these must be approved by the UCC and the Graduate Council)

Delivery Method(s)
Indicate all platforms through which the course is currently planned to be delivered.

Response:
On-Campus

Course Description
Provide a brief narrative description of the course content. This description will be published in the Academic Catalog and is limited to 50 words or fewer. See course description guidelines.

Response:
This course covers software development protocols for wearable and mobile electronics such as head-mounted displays, watches, and cellphones. Several embedded input/output interfaces will be studied, including position and orientation sensors, hand trackers, holographic, and stereoscopic displays. The students will practice the material by developing prototype software applications for such devices.

Prerequisites
Indicate all requirements that must be satisfied prior to enrollment in the course. Prerequisites will be automatically checked for each student attempting to register for the course. The prerequisite will be published in the Academic Catalog and must be formulated so that it can be enforced in the registration system. Please note that upper division courses (i.e., intermediate or advanced level of instruction) must have proper prerequisites to target the appropriate audience for the course.

Response:
DIG3878 (C)

Completing Prerequisites on UCC forms:

- *Use "&" and "or" to conjoin multiple requirements; do not used commas, semicolons, etc.*
- *Use parentheses to specify groupings in multiple requirements.*
- *Specifying a course prerequisite (without specifying a grade) assumes the required passing grade is D-. In order to specify a different grade, include the grade in parentheses immediately after the course number. For example, "MAC 2311(B)" indicates that students are required to obtain a grade of B in Calculus I. MAC2311 by itself would only require a grade of D-.*
- *Specify all majors or minors included (if all majors in a college are acceptable the college code is*

sufficient).
• "Permission of department" is always an option so it should not be included in any prerequisite or co-requisite.

Example: A grade of C in HSC 3502, passing grades in HSC 3057 or HSC 4558, and major/minor in PHHP should be written as follows:
HSC 3502(C) & (HSC 3057 or HSC 4558) & (HP college or (HS or CMS or DSC or HP or RS minor))

Co-requisites
Indicate all requirements that must be taken concurrently with the course. Co-requisites are not checked by the registration system.

Response:
None

Rationale and Placement in Curriculum
Explain the rationale for offering the course and its place in the curriculum.

Response:
This course will be the third component of a 3-course sequence (DIG3873 Theory of Digital Media Protocols, DIG3878 Applied Digital Media Protocols, and the proposed course) that allows students with limited programming experience to engage in software development specifically related to their upper level studies in digital arts and sciences. The course will provide a technical capstone to complement the material covered in the first two courses.

Course Objectives
Describe the core knowledge and skills that student should derive from the course. The objectives should be both observable and measurable.

Response:
By taking this course, students will
1. Develop a basic understanding of the technologies used in contemporary wearable and mobile devices.
2. Identify the characteristics and evaluate design elements of wearable devices and mobile systems developed for the general population.
3. Demonstrate software development skills for wearable and mobile devices through class projects and assignments.

Course Textbook(s) and/or Other Assigned Reading
Enter the title, author(s) and publication date of textbooks and/or readings that will be assigned, or a representative list of readings.

Response:
Joseph L. Dvorak (2008). "Moving Wearables into the Mainstream: Taming the Borg", Publisher: Springer. ISBN: 978-1441943392

David Cuartielles Ruiz and Andreas Goransson (2015). "Professional Android Wearables", Publisher: Wrox. ISBN: 978-1118986851

Weekly Schedule of Topics
Provide a projected weekly schedule of topics. This should have sufficient detail to evaluate how the course would meet current curricular needs and the extent to which it overlaps with existing courses at UF.

Response:
1. History of augmented and mixed reality. (Part 1.1 and 1.3 from Dvorak)
2. Principles of wearable and mobile interfaces. (Part 4 from Dvorak)
3. Application Programming Interfaces (APIs) for wearable and mobile devices. (Chapter 1 from Ruiz and Goransson)
4. Computer graphics generated stereoscopy
5. Programming head-mounted displays
6. Position and orientation tracking (Selected chapters from Ruiz and Goransson)
7. Real-time camera feedback and processing
8. Biometric feedback from wrist-based interfaces
9. Multi-modal data synchronization
10. Developing augmented-reality applications
11. Review of mobile applications
12. Review of wearable applications (Part 1.2 from Dvorak)
13. Principles of natural user interfaces
14. Mainstream wearable design (Part 2 from Dvorak)
15. The future of wearable devices (Part 5 from Dvorak)

Grading Scheme
List the types of assessments, assignments and other activities that will be used to determine the course grade, and the percentage contribution from each. This list should have sufficient detail to evaluate the course rigor and grade integrity.

Response:
Individual project: 30%
Group project: 40%
Attendance and participation: 10%
In-class assignments: 20%

Instructor(s)
Enter the name of the planned instructor or instructors, or "to be determined" if instructors are not yet identified.

Response:
To be determined

Addendum to UCC request for creation of new course "DIG4XXX Wearable and Mobile Apps"
(http://apps.aa.ufl.edu/Approval/Requests/Info/10782)

Is "Develop[ing] a basic understanding of the technologies used in contemporary wearable and mobile devices" commensurate with a technical capstone/advanced instruction course? In other words, explain how students of this level still need to gain a 'basic understanding'. [Reviewers are surmising this is because students are not exposed to wearable technologies yet, but please clarify.]
Yes, the reviewers understood this right. The students have gained computer coding and software developing skills in the previous two prerequisite courses, but they have not been exposed to wearable technologies. This course will introduce the topic of wearable and mobile devices as an application area in which the students can practice the coding skills acquired in the previous semesters.

Please provide more detail concerning how students will be assessed to enable the committee to evaluate the course rigor and grade integrity.
Individual project: 30% (On what, and what are the expectations of the student?)
Group project: 40% (Is 40% of grade from group project a normal capstone assessment? Please describe the project.)
Attendance and participation: 10% (How is this assessed?)
In-class assignments: 20% (What are assignments, and how many will be expected of the student to complete?)
Individual project: 30% Each student will submit by the middle of the semester a small-scale interactive software application for a wearable or mobile device designed and implemented by the student. All students will be provided with software emulators of mobile and wearable devices to test their products. Each submitted project should demonstrate an innovative use of sensors for natural user interaction in wearable and mobile devices.

Group project: 40% On of the goals of the capstone projects in the Digital Worlds Institute is to expose the students to industry standards by simulating industry-like work flows and collaborative environments through group projects, in which the students participate in assigning discrete roles to individual team members based on personal skill sets and also participate in organizing and managing their team. In this course, each team will submit by the end of the semester a medium-scale interactive software application for a wearable or mobile device designed and implemented by the students in each group. Each submitted project should demonstrate an innovative use of sensors for natural user interaction in wearable and mobile devices.

Attendance and participation: 10%

The attendance is recorded daily for the on campus and on-line students, and the participation is assessed through their contributions in discussions posted on Canvas for both on-campus and on-line students.

In-class assignments: 20% During the in-class assignments the students will be asked to extend given samples of source code by introducing new features and demonstrate in class their result using the provided wearable or mobile devices (physical or simulated). The exchange of source code (between the instructor and the students) will be managed through the Digital Worlds Institute server that allows real time sharing of project files.