2016 SISS Syllabus

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Course Name** | New Problems Require New Solutions | | | | **LANGUAGE** |
| English |
| **Course No.-Class** |  |  | **Major** | |  |
| **(Credits/Theory/Practice)** |  |  | **(Day/Time/Classroom)** | |  |
| **Method** | Lecture/Lab/Demo | | | **Type** |  |

**＊Professor**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Name** | **Department** | **Personal**  **Number** | **Office Number** | **E-Mail** | **Available Hours** |
| Todd Holoubek | Visual/Multimedia design | 01067490910 |  | todd.holo@gmail.com | by Appointment |

**1 Course Description &Objective**

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| **1) Course Description (5~10 lines)** |
| This course utilizes the student’s current skill-set to solve a problem. The classes will begin with an introduction to Physical Computing and Basic Programming. They are free to bring any additional skill to the problem solving process. We will look at issues facing our current generation, choose one issue, and as teams, the students will create their solution. This solution can take any shape. The foundation tools for this course are programming (all languages are acceptable. This class will use arduino as its core tool), embedded systems(Arduino, Raspberry PI), the students collaborative skills, and imaginations. The session will end with a presentation of the students solutions. |
| **2) Course Objective** |
| This course allows students to see their own potential for real world problem solving using their current skills as well as applying new technologies to solution design. Each student will walk away with new skills and a process by which they can apply to any projects they encounter in the future. |

**2 Course Resources**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Seminar  ( x) | Presentation  (x) | Q & A  (x) | Special  Lecture  () | Field Trip  ( ) | Handouts  () | Audio/Video/TV  (x) | Team  Teaching  ( ) |
| Discussion  (x) | Small Group  (x ) | Problem  Solving  ( x) | Experiment  Practice  ( x) | Case  Study  () | Computer  Assisted  (x) | OHP/Slide  ( ) | Other  ( ) |

**3 Main Textbooks & References**

**1) Textbook**

none

**2) Reference**

**arduino.cc**

**processing.org**

**bektodam.com**

**4. Assigned Books**

none

**5. Assignments**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Assignment** | **NO. of**  **Times** | **Due**  **Week** | **Weighing** | **Contents** | **Method** |
| Set up Wordpress for documentation  Set up Dropbox for file sharing  Generate 3 ideas that solve a problem faced by your generation  Document your Progress on your WordPress\* | 1 | 2 | 10 |  |  |
| Create a team  Choose one solution from your team’s list  Build out the concept for presentation.  Document your Progress on your WordPress\* | 1 | 3 | 10 |  |  |
| Create a plan for making that solution a reality.  Document your Progress on your WordPress\* | 1 | 5 | 10 |  |  |
| Complete your Prototype for presentation  Document your Progress on your WordPress\* | 1 | 8 | 10 |  |  |
| Iterate your prototype based on feedback from your user testing.  Document your Progress on your WordPress\* | 1 | 13 | 10 |  |  |
| Create a presentation complete with KeyNote/PPT and Demo  Document your Progress on your WordPress\* | 1 | 15 | 10 |  |  |
| Final Presentation | 1 | 15 | 25 |  |  |
| WordPress Documentation | 15 | weekly | 15 |  |  |

**＊Additional Explanation for assignments**

**Progress documentation is due every week = 15.**

**6. Grading Policy**

|  |  |  |  |
| --- | --- | --- | --- |
| **Method of**  **Evaluation** | **No. of Times** | **Content of Evaluation** | **Weighing** |
| **Assignment** | 15 |  | 15 |
| **Mid-tem** | 1 |  | 30 |
| **Final** | 1 |  | 30 |
| **Quiz** |  |  |  |
| **Practices** | 15 |  | 15 |
| **Attendance** | 15 |  | 10 |
| **ETC** |  |  |  |

**※Notes**

**5. hours free absences allowed, and 2 points deduction with each additional absence.**

**6 . Weekly Schedule**

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| --- | --- | --- | --- |
| **Week** | **Theme** | **Method** | **Pages** |
| **1** | Class Introduction  Discussion - Problem Solving | lecture/discussion |  |
| **2** | Introduction to available tools Arduino - Digital Output  Process: Ideation 1 | lecture/discussion/demo |  |
| **3** | Arduino - Digital Input  Process: Ideation 2 | lecture/discussion/demo |  |
| **4** | Concept presentation  Arduino - Analog Output  Process: Planning 1 | lecture/discussion/demo |  |
| **5** | Arduino - Analog Input  Process: Planning 2 | lecture/discussion/demo |  |
| **6** | Arduino - Motor Control  Process: Prototyping 1 | lecture/discussion/demo |  |
| **7** | Arduino - Sensors  Process: Prototyping 2 | lecture/discussion/demo |  |
| **8** | Prototype Presentations | lecture/discussion/demo |  |
| **9** | Arduino - Sensors 1  Process: User Testing | lecture/discussion/demo |  |
| **10** | Arduino - Sensors 2  Process: Prototype Iteration | lecture/discussion/demo |  |
| **11** | Projects review | lecture/discussion/demo |  |
| **12** | Fabrication Lab 1  Process: Executing the plan | lecture/discussion/demo |  |
| **13** | Fabrication Lab 2  Process: Presentation | lecture/discussion/demo |  |
| **14** | Project Building Lab | lecture/discussion/demo |  |
| **15** | Final Presentations | lecture/discussion/demo |  |