1. **Course number and name**  
   CptS 481: Python Software Construction

2. **Credits and contact hours**  
   3 credits, 3 lecture hours

3. **Instructor’s or course coordinator’s name**  
   Robert R. Lewis

4. **Textbook, title, author, and year**  
   *Other supplemental materials*  
   F. Lundh. *An Introduction to Tkinter*. (Unpublished)  

5. **Specific course information**  
   a. *Catalog description*: Intensive introduction to the python language; user interface, building and using extension modules; C interfacing; construction of a major project.  
   b. *Prerequisites or corequisites*: CptS 121, CptS 122, CptS 223 and CptS 224

6. **Specific goals for the course**  
   By the end of the course, students will be able to  
   - Design, build, test, debug, and deploy medium-scale (single programmer) platform-independent modules, packages, and scripts in the Python language (2a, 2e, 2g)  
   - Explain the internal workings of Python data structures and its interpreter (1e)  
   - Build Python graphical user interfaces using the Tkinter package (1c, 2g)  
   - Invoke a Python module from within a C program (2g)  
   - Construct a module in C that can be invoked from a Python module (2g)  
   - Complete a substantial project in Python (possibly as part of a team) (2g)

7. **Brief list of topics to be covered**  
   - The Python Language  
     - The Environment  
     - Program Structure and Identifiers  
     - Base Classes  
     - Expressions  
     - Statements  
     - Functions  
     - Modules and Packages  
     - Input/Output  
     - Objects  
     - Exceptions
- Builtins
  - Python Software Development
    - Documenting
    - Checking and Debugging
    - Testing
  - Building Python User Interfaces
    - Tkinter
  - Advanced Topics
    - Distributing
    - System Programming
    - Embedding and Extending
    - Arrays
    - Case Studies
  - Selected Topics
    (Possible choices. Actual topics will be selected with student input.)
    - 3D Graphics
    - Compiling
    - Cookbook Selections
    - Databases
    - Games
    - Networking
    - Web CGI