Course Syllabus	
1. Instructor Information	
Instructor (s) Name and Contact Information	**Name:** **Office: Block 64 R-303** **Phone:** **Email:** **Office Hours:**
2. Course Information	
Course Title	**Advanced Programming**
Course Code	SWEG 3108
Credit Hrs.	4
Pre-requisite(s)	Object Oriented Programming (SWEG3101)
Target Group:	3nd year SE
Academic Year:	2014 E.C
Semester:	II

3. Course Learning Outcomes

At the end of the course, students will be able to do:

- Analyze how the programming language works
- Explore the basic concepts of Object-oriented programming
- Develop Graphical User Interface
- Demonstrate the concept of Network Fundamentals and Socket Programming, Remote Method, Thread and HTTP services
- Explain database connectivity techniques and demonstrate the ability to write applications that solves a real world programming problem

4. Course Description

This course enfolds popular higher-level programming concepts that are beyond the scope of the introductory Programming courses.

Topics like multithreading, socket programming, object serialization, and Event objects are crucial components of this course.

Including the above-mentioned advanced programming concepts other important feature of the technologies like socket and web programming are also discussed.

Basics of high-level programming concepts and threads will be given priority to pave the way for developing advanced programming skills.

The course then advances to some of the most popular APIs in the language: Remote Method

Invocation (RMI), Database connection and GUI, a specification for developing a software component.

5. Course outline		
Week	**Content**	**Reference**
1-2	**Chapter One : Functional Programming** 1.1 Packages 1.2. Collections 1.3. Lambda Expressions 1.4. Object Serialization 1.5. Declarative Programming	
3-4	**Chapter Two: System Programming** 2.1. File Descriptors 2.2. Reading and Writing Files 2.3. Files and Directories 2.4. File Locking 2.5. Memory Mapped I/O 2.6. Creating Processes 2.7. Process Management 2.8. Pipes and Signals	
5-6	**Chapter Three: Persistence and Databases** 3.1. Overview of the database connectivity 3.2. Connection, Cursor, Row Objects 3.3. Create, Read, Update and Delete (CRUD) operations 3.4. Query Results and Metadata	
7-8	**Chapter Four: Network Programming** 4.1. Over view of sockets 4.2. Establishing Connections 4.3. TCP Clients and Servers 4.4. UDP Clients and Servers 4.5. Secure Sockets Layer	
9-10	**Chapter Five : Remote Procedure Call & Remote Method Invocation** 5.1. Overview of RPC & RMI	

	5.2. Stub and skeleton 5.3. The RMI Registry 5.4. The Remote Interface 5.5. Implementing RMI	
11-12	**Chapter Six: Threads** 6.1. Introductions to threads 6.2. Creating a Thread 6.3. Thread Scheduling 6.4. Daemon threads 6.5. Synchronization	
13	**Chapter Seven: GUI** 7.1. GUI components 7.2. Layout Management 7.3. Event handling 7.4. Deployment	
14	**Chapter Eight: Web Programming** 8.1. The Life Cycle of a HTTP server 8.2. Handling HTTP Requests and Responses 8.3. HTML Choices 8.4. Client/Server Communication	
16	**Final Exam weeks**	

6. Textbook

Herbert Schildt (2018), "Java: The complete Reference", Tata McGraw-Hill Education, 11th Ed.

7. Reference

- Jan Graba (2013), "An Introduction to Network Programming with Java: Java 7 Compatible", Springer, 3rd edition.
- R. Harold (2013), "Java Network Programming", O'Reilly, 4th Edition
- Mark Lutz (2013), David Ascher, "Learning Python", O'Reilly, 5th Edition

8. Method of Instruction

Class lectures	**3 Contact hour per week** • Active learning (involves the full participation of students) • Teach inductively and to be followed by deductive assertions
Study of text book	• This is fully the responsibility of the learner
Group Assignment	• Work in groups in not more than 4 students per group • Recognize & evaluate individual contribution

Individual Assignment	• Each student is given to separate question by instructor. • Student will prepare report or submit present it and evaluated by the instructor.

9. Grading

Type	Weight	Due Date	Behavior and criteria
Test 1 and 2	35%	To be Arranged	
Project	15%	To be Arranged	
Final Exam	50	To be Arranged	
Total:	**100%**		

10. Course policies

- You ***must*** read the textbook (ahead of and/after) the class.
- **Academic dishonesty**: *Plagiarism* is serious offense and might result in course failure.
- **Collaboration**: On working assignments, you can collaborate with others to understand concepts but the actual problem should be solved by you organized in your own way.
- **Attendance**: Students who fail to attend more than 15% of the lecture classes and 5% of the lab class will not sit for Final Exam.
- **Dressing code**: You should respect social norms and values.
- **Cheating**: zero tolerance on cheating exams, serious measures will follow.
- **Mobile**: Make silent, no chatting.
- **Time**: Don't be late; try to arrive 3 min before class. If you arrive after class has started, don't knock just go back.
- **Classroom**: Don't talk, raise your hand if you have questions
- **Participation**: Ask questions and respond when asked, even if you don't know. Say, I don't know!
- **Lab**: Practice by your own, don't copy, one person/PC, but you can share experiences.
- **Grading System:** As determined by the universities legislation.

11. Due date:

All assignments must be submitted in the class on the due date for full credit. No assignment will be accepted after class on the due date.
12. Class room Behavior:
Anything that disturbs your instructor or your colleagues during the class period is considered a troublesome behavior. Examples include: Using mobiles, PDA, making offensive remarks, sleeping, working on assignments related to other courses, etc. troublesome behaviors are completely prohibited.

13. Approval

Name:	**Signature**	**date**
Instructor:		
Lab Assistant:		
Dep't Head:		
Associate Dean for Academic Affairs:		