|  |  | Ahsanullah University of Science and TechnologyBangladesh |
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# COURSE OUTLINE

**1. Title**: **Formal Languages and Compilers Lab 247, PEO, to be announced, 12**

**2. Code**: **CSE 4130**

**3. Credit hours**: **0.75**

**4. Level**: **Level 4, Term 1**

**5. Faculty**: **Engineering**

**6. Department**: **Computer Science and Engineering (CSE)**

**7. Programme**: **Bachelor of Science in Computer Science and Engineering (B.Sc. in CSE)**

**8. Synopsis from the Approved Curriculum**:

**Laboratory works based on CSE4129.**

**9. Type of course (core/elective)**: **Core**

**10. Prerequisite(s) (if any)**: **CSE1203 (Discrete Mathematics)**

**11. Name of the instructor(s) with contact details and office hours**:

**Md. Aminur Rahman**

**Room: 7A01/L**

**Phone: Extension 516**

**E-mail: aminur.cse@aust.edu, aminur.aust27@outlook.com**

**Office hour: Sunday 12:10 PM – 1:00 PM; Thursday 09:40 AM - 10:30 AM,**

**Thursday 11:20 AM - 12:10 PM**

**Amir Hossain Raj**

**Room: 9B02**

**Phone:**

**E-mail: raj.cse@aust.edu**

**Office hour: Monday 2:40 PM - 3:30 PM; Tuesday 1:50 PM - 3:30 PM**

**12. Semester Offered**: **Fall - 2021**

**13. Percentages of Assessment Methods**

| Method | Percentage |
| --- | --- |
| **Attendance and Class Performance** | **20** |
| **Assignment (Offline)** | **30** |
| **Lab Quiz (Online / Lab Final)** | **40** |
| **Project** | **10** |

**14. Week wise distribution of contents and assessment methods**

| Week | Topics | Assessment Method(s) |
| --- | --- | --- |
| **1** | **Scanning and Filtering a Source Program**  Development of a program which can filter comments and white space characters from a source program. |  |
| **2** | **Lexical Analysis**  Implementation of a program that reads any simple program as source and separates out the valid tokens from the source program. | **Class Assignment / Online** |
| **3** | **Symbol Table Construction and Management**  Development of programs for symbol table construction and management. | **Class Assignment / Online** |
| **4** | **Detecting Simple Syntax Errors**  Development of programs to detect and report simple syntax errors. | **Class Assignment / Online** |
| **5** | **Use of CFGs for Parsing**  Detecting simple syntactic and semantic errors in expressions and statements using Context Free Grammars (CFG). | **Class Assignment / Online** |
| **6** | **Predictive Parsing**  Manual implementation of LL(1) and LR(1) parsing algorithms. | **Class Assignment / Online** |
| **7** | **Term Final and Intermediate Code Generation and Machine Code Generation**  Implementation of programs for intermediate code generation and machine code generation phases. | **Class Assignment / Online**  **Final Quiz** |

**15.** **References**

17.1. Required (if any)

1. ***Compilers: Principles, Techniques and Tools* (2nd Edition).**

**Authored by: Aho A. V., Lam M. S., Sethi R., Ullman J. D.**

**Publisher: Pearson Education, 2007.**

1. ***Introduction to Automata Theory, Languages, and Computation* (3rd Edition).**

**Authored by: Hopcroft J. E., Motwani R., Ullman J. D.**

**Publisher: Pearson Education, 2007.**

17.2. Recommended (if any)

1. **Google Classroom**