To get started

This section is good enough to get through Compiler Design interview as university freshmen along with reasonable problem solving and coding skills.

- http://www.bottomupcs.com/
  - Would suggest to go through chapters 3, 7, 8, 9
- Compilers basics
  - You can ignore front-end part (lexical analysis and parsing). It's mostly done. Try to understand what is intermediate representation, what are basic blocks and control flow graphs, how they are used for optimization etc
  - Some details about register allocation
  - How compiler generates code for function calls (like prolog, epilog etc)
  - How is runtime stack maintained (like local variables, arguments etc go on to the stack, how activation record is created for each function call)

Deep Dive

Option 1

https://lowlevelbits.org/how-to-learn-compilers-llvm-edition/

Option 2(Comprehensive list of resources)

https://www.linkedin.com/pulse/learning-compilersllvm-how-start-sushim-shrivastava

How to Contribute to Open source LLVM Compiler

One common way I've seen a lot of students start contributing to LLVM is to apply for Google Summer of Code program. That way, even if someone is a complete beginner and has just read the basic LLVM documentation, the mentor assigned for the project would normally help out with most doubts and help complete the project and get it reviewed upstream.

Also, now that LLVM has moved to using github issues instead of bugpoint, we can easily search for "beginner" labelled issues in their issues page. Because of LLVM's size, it might be a little hard to find an issue even in that list that someone could start looking at, but maybe picking an issue that seems interesting and engaging with the upstream community is probably one easy way to start learning a part of LLVM codebase.

Internship/Mentorship/Career opportunities

Many companies in India and abroad provide opportunities in compilers, rather we are running short of talent pool globally. There is an acute shortage of Compiler Engineers

Please reach out to rkolacha@qti.qualcomm.com or sushims@qti.qualcomm.com for understanding these opportunities at Qualcomm.