UNIC-CASS Design-to-Tapeout Meetup #4 (Sep. 18, 2024)

Mock tapeout deliverables

Presented by: D-to-T mentoring team

CAS
IEEE CIRCUITS AND SYSTEMS SOCIETY

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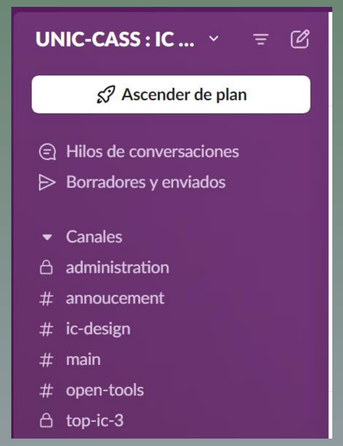
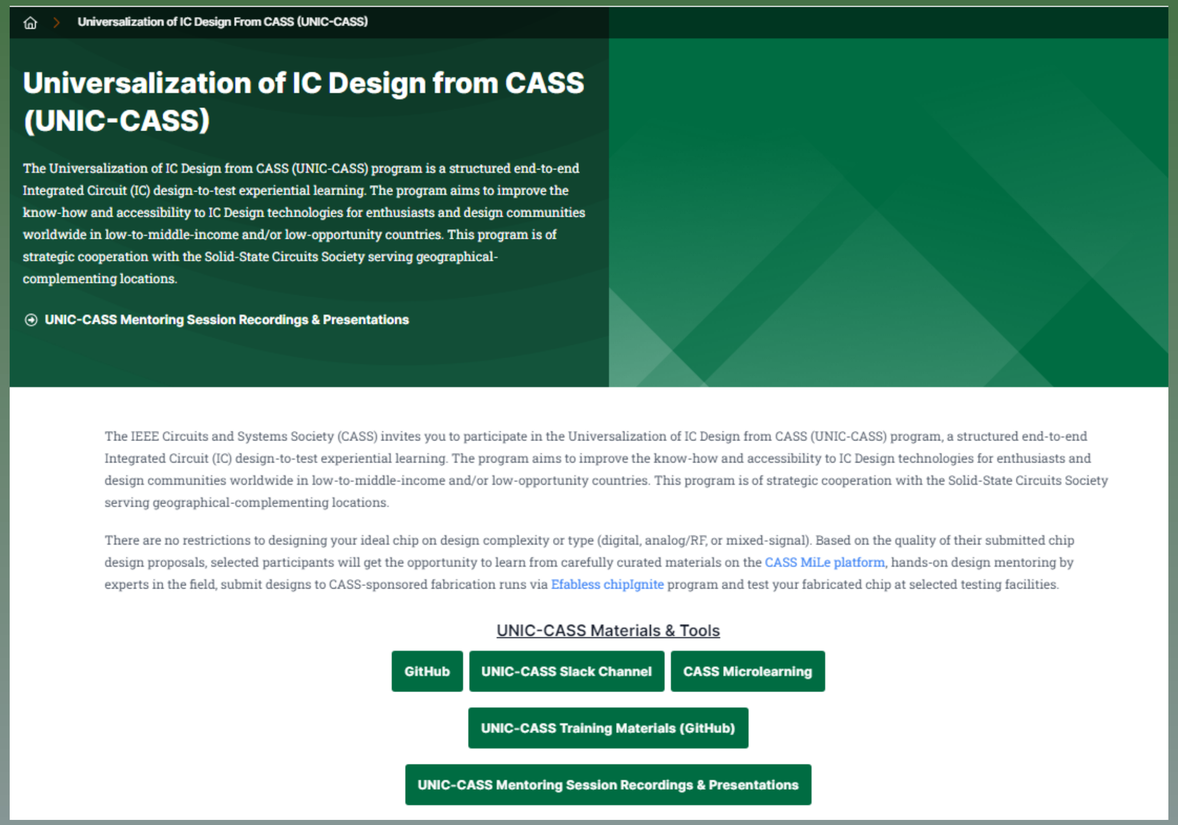
Design-to-Tapeout Mentoring

Communication and organization

- Bi-weekly mentoring sessions
- Slack Channel
- UNIC-CASS website



UNIC-CASS Slack channel: https://unic-cass.slack.com/



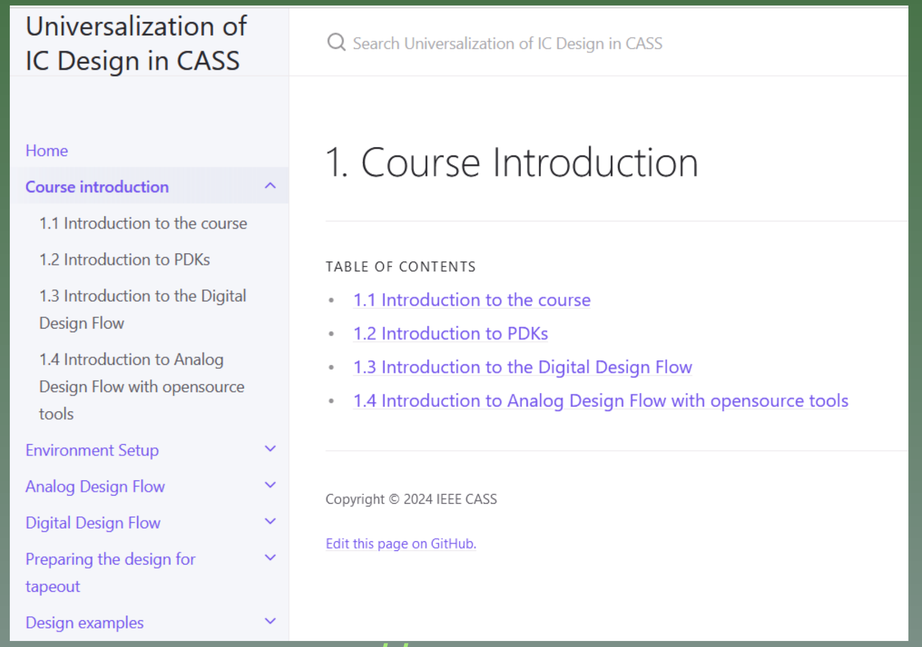
Recordings and presentations: https://ieee-cas.org/unic-cass-mentoring-session-recordings-presentations

UNIC-CASS educational material

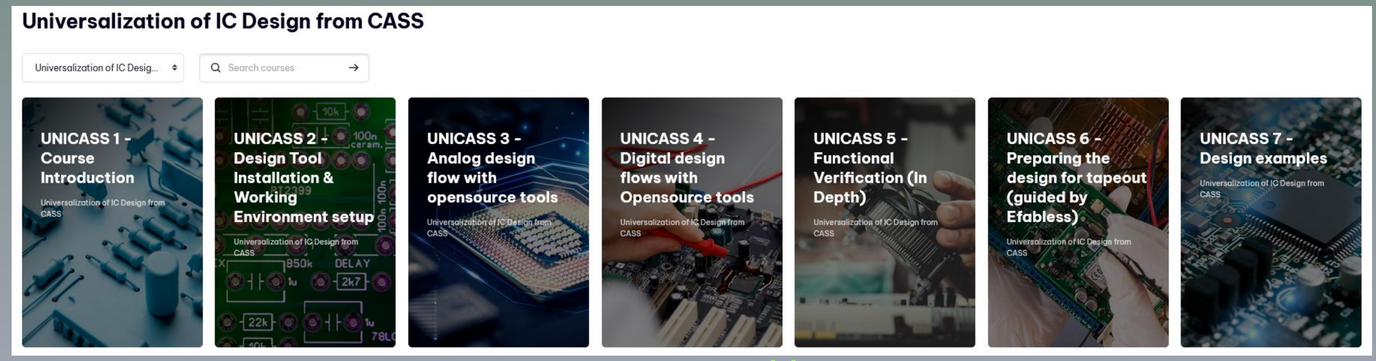
Source: https://github.com/unic-cass/unic-cass.github.io

- New videos made by volunteers following the lecture notes
- Lecture notes in Markdown format

  ⇒ You can contribute by updating them
- New document theme using Just-the-docs Jekyll theme
- Latest materials in Github
- Materials in CASS-MiLe will be updated into v2.0 soon
- Add instructions for Klayout in analog design flow
  - Layout
  - DRC
  - LVS



Website: https://unic-cass.github.io



CASS-MiLE: https://ml.ieee-cas.org

[Duy-Hieu Bui, Vietnam National University Hanoi]

Design-to-Tapeout Mentoring Team 2024

Gabriel Maranhão,
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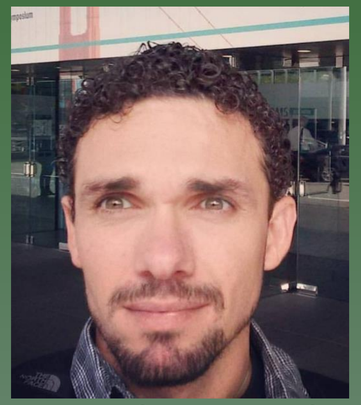

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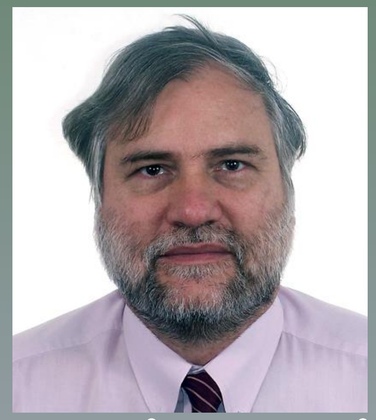


Sergio Bampi
UFRGS (Brasil)

Main Design-to-tapeout milestones

- **First design review (mock tapeout)**
  - Purpose: Prepare the teams in advance for the final tape-out phase
  - Date: Last week of September
- **Second design review (first DRC/LVS clean design delivery)**
  - Purpose: Verify feasibility of designs and top integration
  - Date: Second week of October
- **UNIC-CASS tapeout**
  - Purpose: final delivery of top designs
  - Date: November 8th

Design-to-Tapeout Mentoring

Weekly mentoring sessions 1

Activities	Date/ Deadline	Purpose/ comments	Your Deliverables (provide info/links on your GitHub)	We will provide/handle
1st Meet-up	Aug 12, 1pm-2pm UTC	Kick-off meeting	N/A	N/A
Weekly meet-ups	21/8,28/8,4/9, 18/9 **1pm-2pm UTC**	Mentoring and Design groups to present progress. Short presentations on topics such as Caravel/Caravan, best practices, pitfalls to avoid.	N/A	Slides and videos will be posted on the UNI-CASS website
1st Design submission [Mock tape-out]	Sep 25	Prepare the teams in advance for the final tape-out phase	Passing pre-check report	1. Detailed instructions for pre-check 2. Example files
1st Design Review & Feedback	Oct 2	Provide feedback and advice for the next stages	N/A	Feedback on the pre-check work
Weekly meet-ups	16/10, 30/10, 5/11 **1pm-2pm UTC**	Focused mentoring + preparation for final tape-out + evaluate status of potential drop-outs	N/A	Slides and videos will be posted on the UNI-CASS website

Design-to-Tapeout Mentoring

Weekly mentoring sessions 2

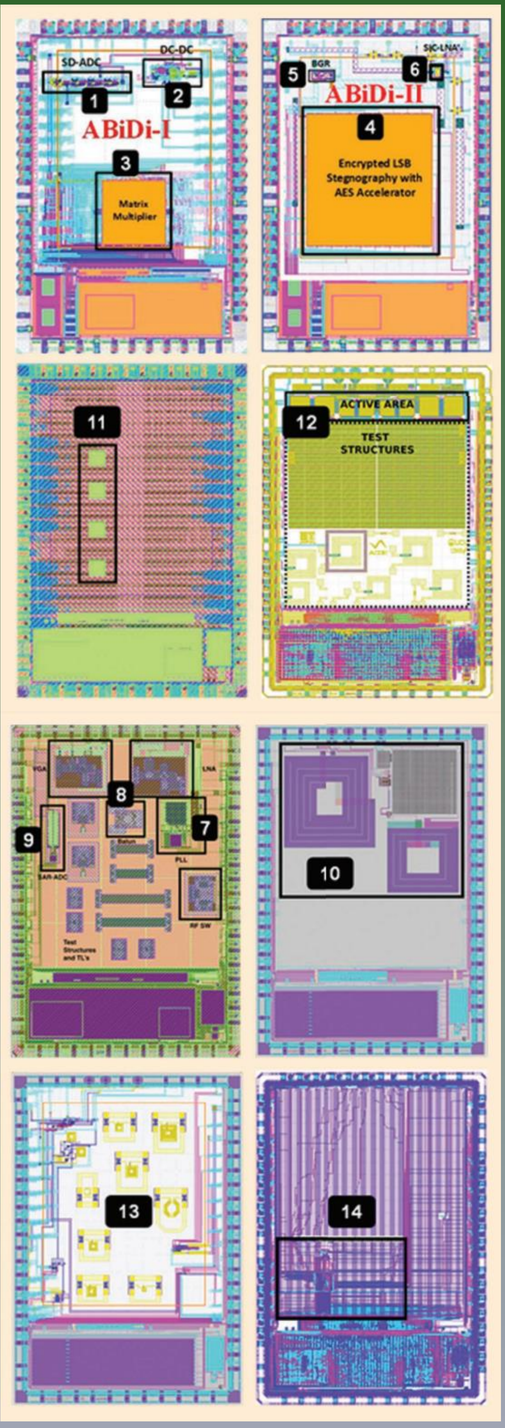
Activities	Date/ Deadline	Purpose/ comments	Your Deliverables (provide info/links on your GitHub)	We will provide/handle
2nd Design submission	Oct 16	Verify feasibility of designs and top integration	Detailed circuit description (pinout, area and functionality) + DRC/LVS reports on Efabless platform	Check reports to confirm all blocks are LVS and DRC clean.
2nd Design Review & Feedback from mentors	Oct 23	Provide feedback and advice for the final stages	N/A	Feedback on the individual designs + advice for top merge
Efabless pre-check + tapeout	Nov 8	Complete tape-out work on Efabless platform	Deliver COMPLETE Caravel/Caravan drop-ins to Efabless final check	Provide assitance to tape-out leaders within the teams
Tape-out	Nov 11	See: https://efabless.com/chipignite	N/A	List of winner teams included in this tapeout List of unfinished designs to candidate for 2025 UNIC-CASS program
Chip delivery date	Apr 11	See: https://efabless.com/chipignite	N/A	Chip shipping and testing logistics

Additional remarks I

- **Firm deadlines!**
  - November 11 is the hard tapeout date provided by Efabless
  - Please plan according to the proposed activities: design submission and reviews (see schedule)
  - Define a “minimum viable product” as soon as possible, e.g.:
    - A working design based on open source IP for analog
    - Working Verilog code with the main functionality for digital
    - For inspiration: Open source designs – public projects in the efabless platform: https://platform.efabless.com/projects/public
    - Also, join the OSS slack channel: https://join.skywater.tools

Additional remarks II

- **UNIC-CASS uses multi-block caravels**
  - Area and pin count are limited for each project
  - Exact numbers will be adjusted as we see progress
  - Minimize merge work as much as possible



Additional remarks III

- **Finalizing the design is not the finishing line!**
  - Efabless pre-checks
  - Tapeout checks
  - Based on previous experience, some issues can arise at these steps
    - Allocate extra time to understand and execute this
    - Mock tapeout!

Current actions by design teams

- **Finish your mock tapeout by September 25**
- **Complete the mock tapeout form for your team**
  - General info about design and status
  - Git link, Efabless repo, link to output report
  - **The form link will be sent later today**

For more information and to join CASS, visit:
IEEE-CAS.ORG