

GIAN course on
Modelling and Analysis of Cyber Physical Systems
Venue: VC Room, Samantapuri Campus
4 July – 14 July

Lecture/Lab Schedule

4 July 16:

- 10 AM – 10.45 AM: Welcome ceremony
- 10.45 – 11.15 AM: Tea/coffee
- 11.15-12 noon: Course overview (MS)
- 12-1.15 PM: Cyber Physical Systems; Modelling of Cyber Physical Systems (MB)
- 1.15 – 2.30 PM: lunch break
- 2.30- 3.30 PM : Modelling using Event-B (MB)
- 3.30-4 PM: Tea break
- 4.- 5 PM: Laboratory: Event-B Examples (MB/MS)

5 July 16:

- 9.30-11 AM: Model checking/ Automated proof (MB)
- 11-11.11.30 AM: Tea break
- 11.30- 1 PM: Event-B Lab (MB/MS)
- 1 – 2.30PM: Lunch break
- 2.30- 3.30 PM: Modelling using Simulink (MS)
- 3.30-4 PM: Tea
- 4- 5 PM: Safety in control systems (MB)

6 July 16: No class (Id/ Ratha Yatra)

7 July 16

- 9.30 – 10.45 AM: Refinement/ refinement verification (MB)
- 10.45-11.15 AM: Tea break
- 11.15 – 12.30: Model based testing-I (MS)
- 12.30 – 2 PM: Lunch break
- 2 – 3.15 PM: Decomposition of control systems (MB)
- 3.15-3.45 PM: Tea break
- 3.45 – 5 PM : Model based development of CPS (SR)

8 July 16

- 9.30-10.45: Hybrid systems (SM)
- 10.45 – 11.15 AM: Tea break
- 11.15 – 12.30: UML-B diagrams(MB)
- 12.30 – 2 PM: Lunch break
- 2-3.15 PM: co-simulation of discrete/continuous systems (MB)
- 3.15-3.45 PM: Tea break
- 3.45 – 5 PM: Models of Concurrency (SR)

9 July 16

- 9.30 – 10.45 AM: Synchronous and Dataflow models of CPS (SR)
- 10.45-11.15 AM: Tea break
- 11.15 – 12.30 AM: Timing Analysis (SM)
- 12.30 – 2 PM: Lunch break

11 July 16:

- 9.30-10.45: Artificial Intelligence in CPS (SM)
- 10.45-11.15 AM: Tea break
- 11.15-12.30: Implementation of CPS –I (SR)
- 12.30 – 2 PM: Lunch
- 2 – 3.30 PM: Lab (SM)
- 3.30-4 PM: Tea break
- 3.30 – 4.30 PM: Implementation of CPS-II

12 July 16:

- 9.30 – 10.45 AM: Planning/Learning in CPS (SM)
- 10.45 – 11.15 AM: Tea break
- 11.15 – 12.30 Implementation of CPS-III (SR)
- 12.30 – 2 PM: Lunch break
- 2 – 3.15 PM: Model based testing-II (MS)
- 3.15-3.45 PM: Tea break
- 3.45 – 4.45 PM: Basics of Control Systems (NCS)

13 July 16

- 9.30- 10.45 AM: Automotive/Aerospace applications (SR)
- 10.45- 11.15 AM: Tea break
- 11.15- 12.30 PM: Modelling Languages - SysML(MS)
- 12.30 – 2PM: Lunch break
- 2 – 3.30 PM: Modelling languages –AADL(MS)
- 3.30-4 PM: Tea break

14 July 16:

- 9.30 - 10.30 AM: Architectural Modelling (MS)
- 10.30- 11 AM: Tea break
- 11-12 noon: CPS Summary (SR)
- 12-1 PM: Closing ceremony
- 1-2 PM: Lunch

Course Instructors:

- Prof Michael Butler (**MB**) Prof S. Ramesh (**SR**)
- Dr Manoranjan Satpathy (**MS**) Dr Swarup Mohalik (**SM**)
- Prof NC Sahoo (**NCS**)