Indian Institute of Technology Course
Revision of CGS600A
(IDP in Cognitive Science)

Title: Computational Tools for Cognitive Science
Course No: CGS 600A
Units: 3-0-0-2-11 (Lab in the form of programming, implementation assignments)
Proposer: Harish Karnick
Others interested in teaching the course: Nisheeth Srivastava, Narayanan Srinivasan, Devpriya Kumar
Pre-requisites: None

Objectives: The objective of this course is to equip students to be able to program the design, experimentation and analysis of sophisticated cognitive science studies independently, and to be able to implement and fit simple cognitive models to behavioural data. The course will be taught primarily in python. Students who succeed in this course will be able to code independently, without having to rely on third party libraries.

Topic	Material	Lecture hours
Linux	CLI, file system, remote access, editors, SDKs, APIs, website management, version control	6
Programming	Syntax, conditionals, loops, functions, lists, programming patterns (python/JS)	6
Algorithms	Search, sort, structures, dynamic programming	6
Data processing	Scraping and wrangling data	4
Experiment design	Programming experiments	4
Modeling	Simple cognitive models, model fitting, parameter estimation	8
Optimization	Linear programming, function optimization, gradient descent, annealing	6
Total		40

Dated:_____

Proposer:_____

Dated: _____

PPGC Convenor:_____

This course is approved/not approved

Chairperson, SPGC
Dated :