Formation Geant4 – DNA Ghana 18 – 22/03/2024 - Detailed program

Monday

Morning - Session 1 (1h30) Introduction, Kernel

11:00 - 11:15 Tutorial Introduction (Daniel)
11:15 - 12:00 Introduction to Geant4 (Marc)
12:00 - 12:30 Kernel (Ivana)

12:30 - 14:00 lunch break

Afternoon - Session 2 (2h45) Geometry

14:00 - 14:15 Qt Introduction (Igor)
14:15 - 14:35 *Exercise 1 – Run G4 for the first time - 20'*
14:35 - 15:00 Materials (Ivana)
15:00 - 15:30 Geometry (Igor)

15:30 - 15:45 coffee break

15:45 - 16:30 *Exercise 2a – Geometry development – 45' (was 60')*
16:30 - 17:00 User Documents (Ivana)

Tuesday

Morning - Session 3 (3h15) - Primaries

9:00 - 9:30 Primary Particle (Marc) (was 45')
9:30 - 10:00 Exercise 3a – Implement primary action with G4ParticleGun - 30'
10:00 - 10:15 Random number generators (Marc)
10:15 - 10:45 Exercise 3b – Play with /random/ commands - 30'

10:45 - 11:00 coffee break

11:00 - 11:30 User Interface (Igor)
11:30 - 12:00 Visualization (Igor)
12:00 - 12:30 *Exercise 2b, 3c – Updating vis.mac - 30'*

12:30 - 14:00 lunch break

Afternoon - Session 4 (2h45) - Physics (0,1)

14:00 - 14:45 Physics 0,1 (Marc)
14:45 - 15:30 *Exercise 4a – Play with /particle command, add G4PhysListFactory in main - 45'*

15:30 - 15:45 coffee break

15:45 - 16:15 UI II (Igor)
16:15 - 17:00 *Exercise 6b – Add own command with generic messenger – 30'*

Wednesday

Morning - Session 5 (3h15) - Scoring

9:00 - 9:15	User Actions (Marc)
9:15 - 9:45	Scoring – 1 - Sensitive detectors (Ivana)
9:45 - 10:30	*Exercise 5a – Complete hits, SD – tracking chamber - 45'*
10:30 - 10:45	*coffee break*
10:45 - 11:15	Scoring – 2 – Touchables, Extracting Information (Ivana)
11:15 - 12:30	*Exercise 5b (calorimeter hits), [5c (drawing hits)] - 45' (was 60')*
12:30 - 14:00	*lunch break*

Afternoon - Session 6 (2h45) - Physics (2), Analysis

14:00 - 14:45	Physics - part-2 (Marc)
14:45 - 15:15	*Exercise 6a – Exploring run/setCut commands, Define regions – 30' (was 45')*
15:15 - 15:30	*coffee break*
15:30 - 16:15	Analysis (Ivana)
16:15 - 17:00	*Exercise 6b – Add histograms, ntuple - 60'*

Thursday

Morning - Session 7 (3h15) - DNA Physics, Scoring II

9:00 - 10:30	Introduction to Geant4DNA (Konstantinos)
10:30 - 10:45	*coffee break*
10:45 - 12:00	*Exercise DNA - **1h15'***
12:00 - 12:30	Scoring II – G4 scorers (Igor)
12:30 - 14:00	*lunch break*

Afternoon - Session 8 (2h45) - Multithreading, Scoring II, Geometry Persistency

14:00 - 14:30	Multithreading – 1 (Igor)
14:30 - 15:00	*Exercise 7a - Migration application to MT - 30'*
15:00 - 15:30	Multithreading – 2, 3 (Igor)
15:30 - 15:45	*coffee break*
15:45 - 16:15	*Exercise 7b - MT configuration, data race - 30'*
16:15 - 16:40	Geometry persistency – 3 (Igor)
16:40 - 17:00	*Exercise 7d – Add export to GDML file in main*

Friday

Morning - Session 9 (3h15) Geometry II, Physics II

9:00 - 9:20	Magnetic field (Ivana)
9:20 - 9:50	*Exercise 8a – Rotate tube volume, add mag. Field – 30' (was 45')*
9:50 - 10:10	Geometry – II (Ivana) (Repeated Placements, Debugging Techniques)
10:10 - 10:40	*Exercise 8b – Change Calorimeter layers with replica - 20' (was 30')*
10:40 - 10:55	*coffee break*
10:55 - 11:55	Physics II (Marc)
11:55 - 12:30	Exercise 9a, 9b – Exploring physics – 35' (was 100' !!)
12:30 - 14:00	*lunch break*

Afternoon - Session 10 (2h45) Vis II, Kernel II, Biasing, Closing

If Physics II fits in 1 hour + 30' exrecise, otherwise we drop Vis II and Kernel II and put more time for physics

14:00 - 14:45	Biasing (Marc)
14:45 - 15:15	*Exercise 10 – Biasing*
15:15 - 15:30	*coffee break*
15:45 - 16:00	Visualization II (Ivana)
16:00 - 16:30	*Exercise - GUI extension*
16:30 - 17:00	Closing

REDUCED PRESENTATIONS/HANDS-ON requiring reworking

Primary Particle – Marc	reduced by	15’	(45 min to 30 min)
Geometry II – Ivana		10’	(30 min to 20 min)
Physics II – Marc		60’	(120 min to 60 min)
Exercise for Physics II		70’	(100 min to 30 min)

DROPPED PRESENTATIONS

Kernel II (Ivana) - 20’

Hands-on with reduced time

Exercise 2a – Geometry development - reduced by	15’	(60min to 45 min)
Exercise 2b, 3c – Updating vis.mac	30’	(60min to 30 min)
Exercise 5b - Calorimeter hits	15’	(45 min to 30 min)

Exercise 6a – Exploring run/setCut commands, Define regions ~ 15’ (was 45’) (45min to 15 min)
Exercise 8a – Rotate tube volume, add mag. Field ~ 15’ (45 min to 30 min)