Appendix

Shared facilities necessary to implement the 2020 EECS vision include:

HPC Cluster Core Facility:

- Shared computing cluster among all users experimenting in the high performance computing (HPC) domain. The model should be flexible and open enough such that people can contribute hardware and get in return CPU time or storage space. Pay-as-you-go is another alternative that has to be considered.

Electronics Manufacturing Core Facility:

- Small to medium scale jobs, dual layer boards, thousands of components maximum.
- Design and build electronic boards. CNC Router, Laser and/or Chemical processes.
- Automatic assembly of components (chips, resistors, capacitors, etc.) and boards. Pick & place machine.
- Manual soldering station for small jobs.
- Computer workstations with all the software installed to run the machines above.

Signal and Systems Core Facility:

- Measurements of signals from 0 to 1 GHz in time and frequency.
- Instrumentation: Digital and Analog oscilloscopes, logic analyzers, real-time digital storage oscilloscopes, spectrum analyzers, RF training system, DDS function generator, analog function generators, other signal sources, programmable linear DC power supply, programmable switched DC power supply, AC power supply, DC electronic load, LCR multimeter, digital multimeter, electrical safety tester, special application instruments.
- Workbenches for people to use the instruments and work in situ.

RF Testing Core Facility:

- RF Anechoic Chamber and associated measuring instrumentation.
- Dry space with heavy electromagnetic shielding and vibrations requirements.

Programmable Hardware Core Facility:

- Field-programmable Gate Arrays (FPGAs), Field-programmable Analog Arrays (FPAAs), Complex Programmable Logic Devices (CPLDs), Programmable System-on-Chip (PSoC), etc.