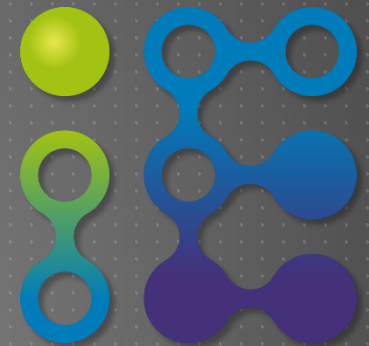


COURSE COUNSELING

(FOR YEARS 3 & 4 IN 2017-18)

Department of Information Engineering

April 19, 2017



OUTLINE

- ▶ IERG & MIEG Curricula
 - ▶ Major required & IE elective courses
- ▶ New IE courses
- ▶ IE courses offered in 2017-18
- ▶ IE Streams of Specialization
- ▶ Discussion on some courses
- ▶ Q&A

ENGG YEAR 1 MAJOR CORE

Semester 1

- ▶ **MATH1510**
Calculus
- ▶ **PHYS1110/1003**
Engineering Physics I
- ▶ **ENGG1100**
Engineering Design Lab

Semester 2

- ▶ **ENGG1410**
Engineering Mathematics I
- ▶ **ENGG1110**
Problem Solving by Programming

One more Faculty Science Course:

Chemistry Courses: CHEM1280, 1380

Life Science Courses: LSCI1001, 1003

Physics Courses: ENGG1310

Other Courses: CSCI1120, CSCI1130

IERG/MIEG YEAR 2 MAJOR REQUIRED

Semester 3

- ▶ **ENGG2460**
Complex Numbers, Differential Equations & Discrete Mathematics
- ▶ **CSCI1140 (1 unit)**
Programming Laboratory
- ▶ **IERG2060**
Basic Analog and Digital Circuits
- ▶ **MATH2010**
Advanced Calculus I
- ▶ **MATH1050**
Foundations of Modern Mathematics

Semester 4

- ▶ **ENGG2430**
Probability & Statistics
- ▶ **ENGG2601 (2 units)**
Technology, Society and Engineering
- ▶ **ENGG2602 (1 unit)**
Engineering Practicum
- ▶ **CSCI2100**
Data Structure
- ▶ **IERG2051**
Signals and Systems
- ▶ **MATH2020**
Advanced Calculus II

FACULTY

IERG

MIEG (additional)

IERG/MIEG YEAR 3 MAJOR REQUIRED

Semester 5

- ▶ **ENGG2310**
Principles of Communication Systems
- ▶ **IERG3820**
Communication Laboratory
- ▶ **IERG3310**
Computer Networks
- ▶ **IERG3800 (1 unit)**
Information Infrastructure Design Lab
- ▶ **IERG3080**
Software Engineering and Practices
- ▶ **MATH2050**
Algebraic Structures
- ▶ **MATH2230**
Complex Variables with Applications

Semester 6

- ▶ **IERG3060**
Microcontrollers and Embedded Systems
- ▶ **IERG3810**
Microcontrollers and Embedded Systems Laboratory
- ▶ **MATH2040**
Linear Algebra II
- ▶ **MATH2070**
Mathematical Analysis I

(IERG3060 & IERG3810 are elective courses for MIEG)

IERG/MIEG YEAR 4 MAJOR CORE

Semester 7

▶ ENGG4998

Final Year Project I

Semester 8

▶ ENGG4999

Final Year Project II

- **Two-semester Final Year Project (FYP)**
- **Project selection in April for next academic year**
- **Professor suggested topics**
- **Student proposed topics**
- **Poster presentations in December and May**

MAJOR ELECTIVES

- ▶ **IERG: at least 17 units**
 - ▶ At least 12 units from IE Major Elective List
 - ▶ The rest (5 units) can be either from IE Major Elective List or from 3000-coded courses from all other programmes under Engineering Faculty

- ▶ **MIEG: at least 9 units from the given MIEG major elective list:**

IE Major Electives, MATH2060, 3010, 3030, 3040, 3070, 3080, ~~3210 (or SEEM2420)~~, 3220, **3215**, 3230, 3270, 3290, 4030

IE MAJOR ELECTIVES

- CSCI 3150** Introduction to Operating Systems
- ENGG 1820** Engineering Internship
- ENGG 4030** Web and Information Analytics
- IERG 3010** Digital Communications
- IERG 3050** Simulation and Statistical Analysis
- IERG 3280** Networks: Technology, Economics, and Social Interactions
- IERG 3300** Introduction to Stochastic Processes
- IERG 3320** Social Media and Human Information Interaction
- IERG 3830** Product Design Project
- IERG 4030** Optical Communications
- IERG 4080** Building Scalable Internet-based Services
- IERG 4090** Network Protocols and Systems
- IERG 4100** Wireless Communication Systems

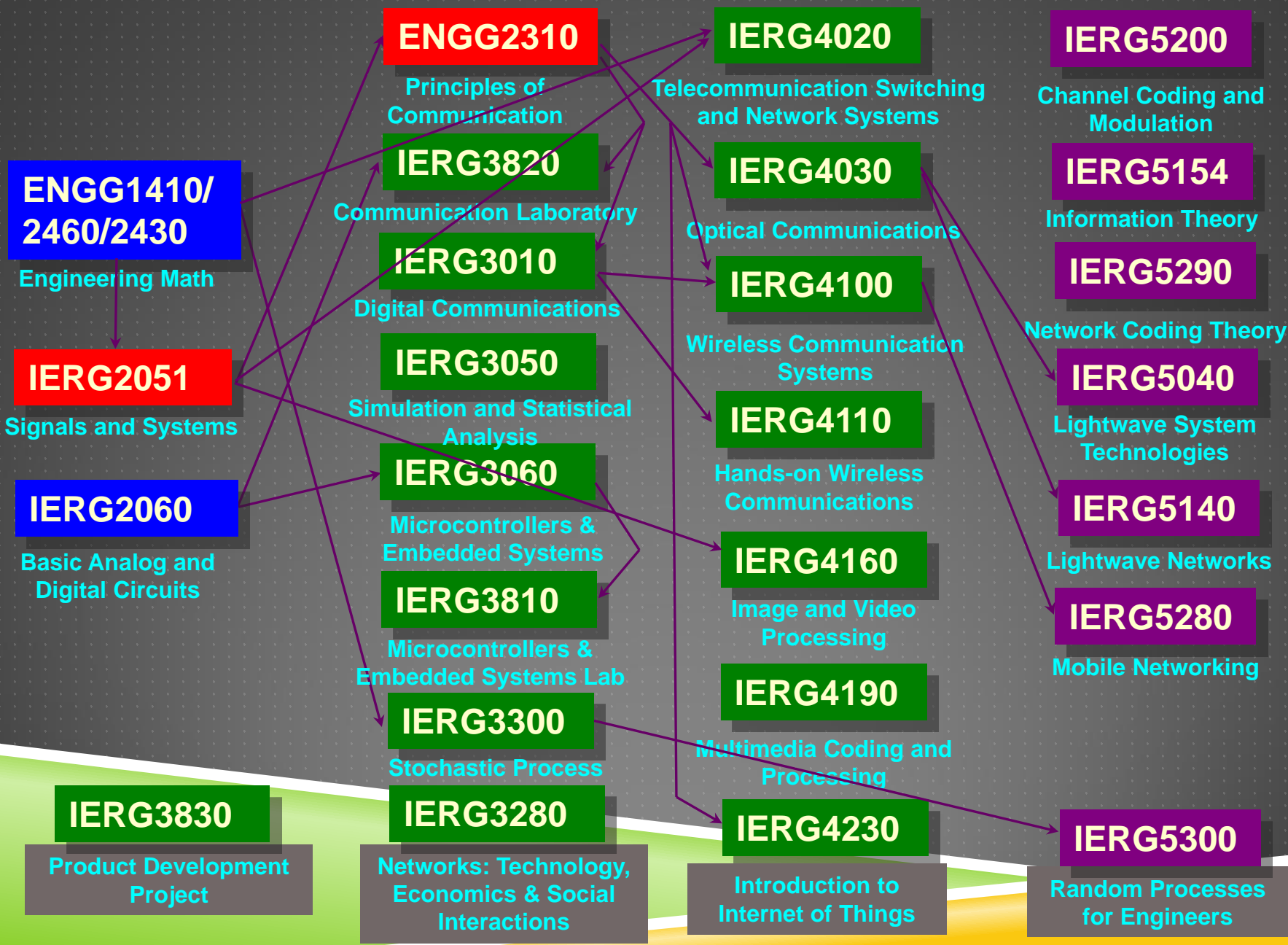
IE MAJOR ELECTIVES

- IERG 4110** Hands-on Wireless Communications
- IERG 4130** Introduction to Cyber Security
- IERG 4160** Image and Video Processing
- IERG 4180** Network Software Design and Programming
- IERG 4190** Multimedia Coding and Processing
- IERG 4210** Web Programming and Security
- IERG 4220** Secure Software Engineering
- IERG 4230** Introduction to Internet of Things
- IERG 4330** Programming Big Data Systems
- IERG 4831** Networking Laboratory I
- IERG 4841** Networking Laboratory II

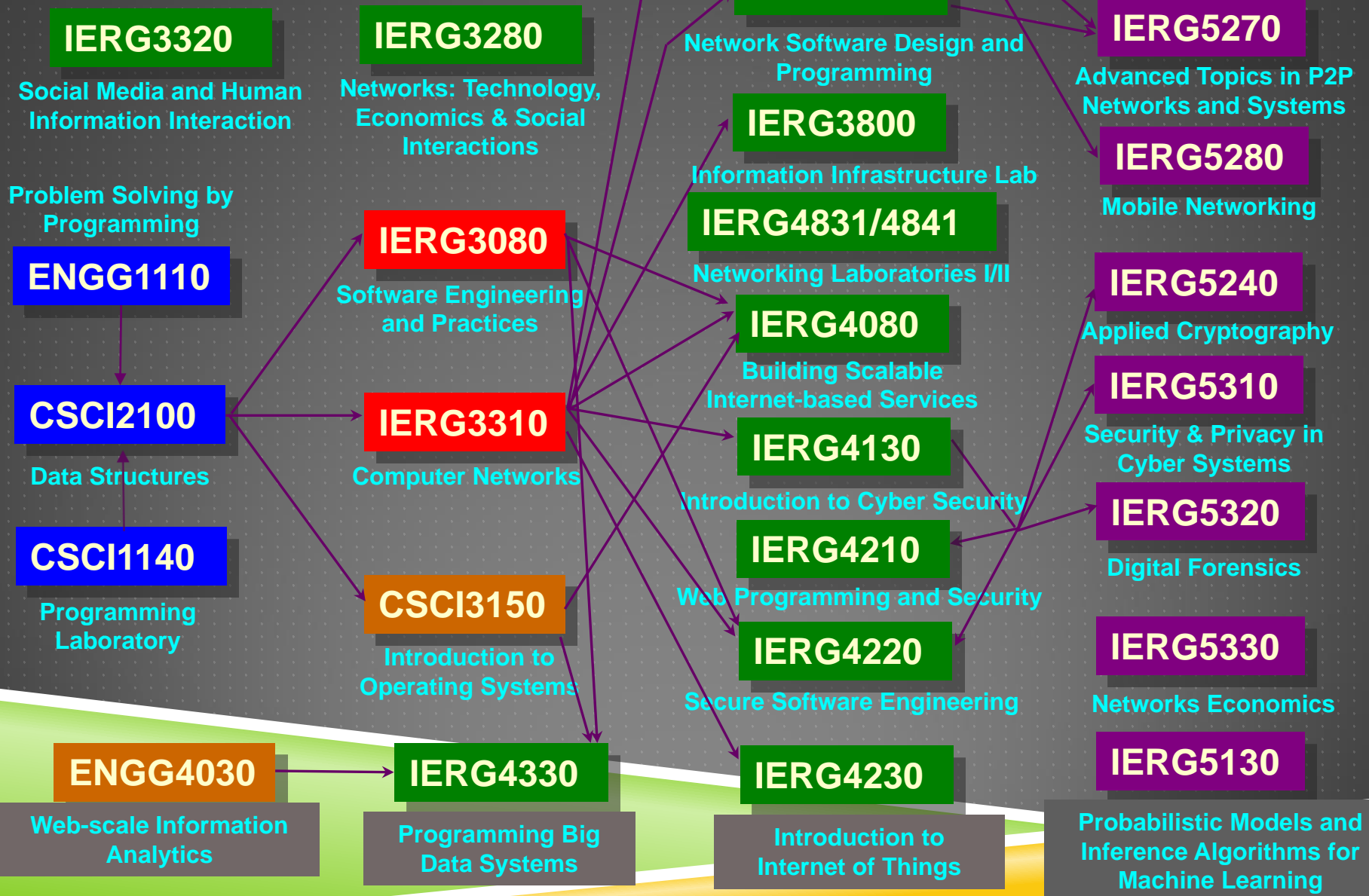
IE MAJOR ELECTIVES

- IERG 5020** Telecommunication Switching and Network Systems
- IERG 5040** Lightwave System Technologies
- IERG 5090** Advanced Networking Protocols and Systems
- IERG 5100** Advanced Wireless Communications
- IERG 5130** Probabilistic Models and Inference Algorithms for Machine Learning
- IERG 5140** Lightwave Networks
- IERG 5154** Information Theory
- IERG 5200** Channel Coding and Modulation
- IERG 5240** Applied Cryptography
- IERG 5270** Advanced Topics in P2P Networks and Systems
- IERG 5280** Mobile Networking
- IERG 5290** Network Coding Theory
- IERG 5300** Random Processes for Engineers
- IERG 5310** Security & Privacy in Cyber Systems
- IERG 5320** Digital Forensics
- IERG 5330** Network Economics

Courses on Telecommunications and Information Processing



Courses on Software, Computer Networking, Cyber Security, Big Data



IERG3320

Social Media and Human Information Interaction

IERG3280

Networks: Technology, Economics & Social Interactions

Problem Solving by Programming

ENGG1110

CSCI2100

Data Structures

CSCI1140

Programming Laboratory

IERG3080

Software Engineering and Practices

IERG3310

Computer Networks

CSCI3150

Introduction to Operating Systems

ENGG4030

Web-scale Information Analytics

IERG4330

Programming Big Data Systems

IERG4090

Network Protocols and Systems

IERG4180

Network Software Design and Programming

IERG3800

Information Infrastructure Lab

IERG4831/4841

Networking Laboratories I/II

IERG4080

Building Scalable Internet-based Services

IERG4130

Introduction to Cyber Security

IERG4210

Web Programming and Security

IERG4220

Secure Software Engineering

IERG4230

Introduction to Internet of Things

IERG5090

Advanced Networking Protocols and Systems

IERG5270

Advanced Topics in P2P Networks and Systems

IERG5280

Mobile Networking

IERG5240

Applied Cryptography

IERG5310

Security & Privacy in Cyber Systems

IERG5320

Digital Forensics

IERG5330

Networks Economics

IERG5130

Probabilistic Models and Inference Algorithms for Machine Learning

IE MAJOR **REQUIRED** & **ELECTIVES** TO BE OFFERED IN 2017-18

First Semester

- IERG3050
- IERG3280
- IERG3320
- IERG4030
- IERG4100
- IERG4130
- IERG4190
- IERG4210
- IERG4831
- IERG4841
- IERG5020
- IERG5130
- IERG5200
- IERG5290
- **IERG3310**
- **IERG3800**
- **ENGG2310**
- **IERG3820**

Second Semester

- IERG3010
- IERG3830
- IERG4090
- IERG4130
- IERG4160
- IERG4220
- IERG4230
- IERG4831
- IERG4841
- IERG5140
- IERG5320
- ENGG4030
- CSC3150
- ENGG5301/IERG5154
- ENGG5303/IERG5100
- ENGG5383/IERG5240
- **IERG3310**
- **IERG3800**
- **IERG3060**
- **IERG3810**

IE STREAMS OF SPECIALIZATION

- ▶ **Communications**
 - ▶ **Internet Engineering**
 - ▶ **Cyber Security**
 - ▶ **Enrichment**
 - ▶ **Big Data: Systems and Applications**
- On voluntary basis.
 - To qualify for a stream of specialization, the student must complete at least 12 units from the electives listed under the stream.
 - A student who satisfies all the requirements of a stream of specialization may obtain a letter of certification from the department.

IE STREAMS OF SPECIALIZATION

Communications

IERG 3010	Digital Communications
IERG 3280	Networks: Technology, Economics, and Social Interactions
IERG 3300	Introduction to Stochastic Processes
IERG 4030	Optical Communications
IERG 4100	Wireless Communication Systems
IERG 4110	Hands-on Wireless Communications
IERG 4130	Introduction to Cyber Security
IERG 4230	Introduction to Internet of Things
IERG 5020	Telecommunication Switching and Network Systems
IERG 5040	Lightwave System Technologies
IERG 5100	Advanced Wireless Communications
IERG 5200	Channel Coding and Modulation
IERG 5280	Mobile Networking
IERG 5330	Network Economics

IE STREAMS OF SPECIALIZATION

Internet Engineering

CSCI 3150	Introduction to Operating Systems (Required)
IERG 3050	Simulation and Statistical Analysis
IERG 3280	Networks: Technology, Economics, and Social Interactions
IERG 3300	Introduction to Stochastic Processes
IERG 4080	Building Scalable Internet-based Services
IERG 4090	Network Protocols and Systems
IERG 4130	Introduction to Cyber Security
IERG 4180	Network Software Design and Programming
IERG 4190	Multimedia Coding and Processing
IERG 4210	Web Programming and Security
IERG 4831	Networking Laboratory I
IERG 4841	Networking Laboratory II
IERG 5090	Advanced Networking Protocols and Systems
IERG 5270	Advanced Topics in P2P Networks and Systems
IERG 5280	Mobile Networking

IE STREAMS OF SPECIALIZATION

Cyber Security

CSCI 3150	Introduction to Operating Systems
IERG 4130	Introduction to Cyber Security (Required)
IERG 4210	Web Programming and Security
IERG 4220	Secure Software Engineering
IERG 5240	Applied Cryptography
IERG 5310	Security & Privacy in Cyber Systems
IERG 5320	Digital Forensics

IE STREAMS OF SPECIALIZATION

Enrichment

ENGG 4030	Web and Information Analytics
IERG 3010	Digital Communications
IERG 3050	Simulation and Statistical Analysis
IERG 3280	Networks: Technology, Economics, and Social Interactions
IERG 3300	Introduction to Stochastic Processes
IERG 4100	Wireless Communication Systems
IERG 4190	Multimedia Coding and Processing
IERG 5154	Information Theory
IERG 5200	Channel Coding and Modulation
IERG 5270	Advanced Topics in P2P Networks and Systems
IERG 5290	Network Coding Theory
IERG 5300	Random Processes for Engineers

IE STREAMS OF SPECIALIZATION

Big Data: Systems and Applications

ENGG 4030	Web-scale Information Analytics (Required)
IERG 3320	Social Media and Human Information Interaction
IERG 4080	Building Scalable Internet-Based Services
IERG 4160	Image and Video Processing
IERG 4230	Introduction to Internet of Things
IERG 4330	Programming Big Data Systems
IERG5130	Probabilistic Models and Inference Algorithms for Machine Learning
CSCI 3320	Fundamental of Machine Learning
CSCI 4180	Introduction to Cloud Computing and Storage
CSCI 4190	Introduction to Social Networks
ELEC 5491	Introduction to Deep Learning

ELITE (ENGINEERING LEADERSHIP, INNOVATION, TECHNOLOGY AND ENTREPRENEURSHIP) STREAM

- ▶ Elective Courses:
- ▶ 15 units of courses:
 - (i) 12 units of ESTR courses of which at most 6 units of courses at 1000 or 2000 level and at least 6 units of courses at 3000 or 4000 level
 - (ii) 3 units of BMEG/CENG/CSCI/ELEG/ENGG/IERG/MAEG/SEEM courses at 5000 level



Q & A

