

## Internet Engineering

### Course Description

(Unless otherwise specified, all are 3-unit term courses of three hours of lecture and one hour of tutorial per week.)

#### INE 1020

##### Introduction to Internet Engineering

2 U; 2 Lect. 1 Tut.

Overview of Internet architecture. Client-server computing. Introduction to TCP/IP model and protocols: application layer protocols (HTTP), transport layer protocols (TCP, UDP), network layer (IP). IP address and naming service. Introduction to client-side and server-side technologies. Data collection and processing. Security and privacy issues. The design of commercial web servers such as eBay and Amazon. Advanced web technologies used in interactive and multimedia applications. Corequisite: INE 1810.

#### INE 1810

##### Internet Applications Laboratory

1 U; 3 Lab.

Familiarize with a sample of web development tools for client-side and server-side development. A project to develop a web server using industrial-grade tools. Corequisite: INE 1020.

#### INE 2720

##### Web Application Software Development

Internet concepts: TCP/IP, gateways and security issues. Web application software development tools. Web applications design; security, efficiency and capacity issues; case studies. Prerequisite: CSC 1110, 1130 or 1500. (Not for Computer Engineering, Computer Science, Information Engineering and Internet Engineering Majors.)

#### INE 2810

##### Networking Laboratory

1 U; 3 Lab.

Switch and router configuration and management. Network traffic measurement and monitoring. Protocol monitoring and packet analysis. Data logging. Corequisite: IEG 3310.

#### INE 2820

##### Operating Systems Laboratory

1 U; 3 Lab.

System administration, system configuration, capacity planning, security management, network management, system maintenance and performance tuning. Corequisite: CSC 3150.

#### INE 3010

##### Advanced Internet Protocols and Systems

High speed networks. Quality of service (QoS) guarantees. Network control such as admission, congestion, and flow control. Routing and resource reservation protocols. Real-time and streaming protocols. Advanced networking programming. Studies of next generation Internet and applications. Prerequisites: IEG 3310 and INE 2810.

#### INE 3020

##### Broadband Network Technologies

Fundamentals of wireless and wired line technologies. Broadband wide area networks (e.g. SONET/SDH, ATM, Broadband CDMA). Broadband access technologies such as optical access networks, cable modems, xDSL technologies, and broadband wireless LANs and WANs.

INE 3910/3920

Thesis I/II

3/5 U

(Graduation Project as prescribed by INE 3910/3920 will carry a separate weight of 5% in honours classification.)

## Study Scheme

### *Major Programme*

Students are required to complete a minimum of 77 units of Major courses as follows:

- |      |   |          |
|------|---|----------|
| (i)  | Required Courses:   | 65 units |
|      | ERG 2016, 2020, 2040, 2310, 2810, INE 1020, 1810, 2810, 2820, 3010, 3910, 3920, CSC 1110, 2100, 3150#, 3170#, 3190#, CEG 2400, ELT 1111, IEG 2051, 3050#, 3080#, 3310#, SEG 3560# |          |
|      | Graduation Project as prescribed by INE 3910/3920 will carry a separate weight of 5% in honours classification.   |          |
| (ii) | Elective Courses:   | 12 units |
|      | Select at least one course from Group I.  |          |
|      | Group I: IEG 3010#, 4180#   |          |
|      | Group II: CSC 3230#, 3260#, 5250#, 5460#, 5470#, 5480#, CEG 3480#, IEG 4020#, 4100#, 4130#, 4140#, 4190#  |          |

Total: 77 units

Plus workshops, training sessions and industrial visits.

### Recommended course pattern

Term 1	Units	Term 2	Units	Term 3	Units
General Education	3	General Education	3	CSC 3170	3
Physical Education	1	Physical Education	1	CSC 3190	3
CSC 1110	3	CSC 2100	3	ERG 2310	3
ERG 2016	3	CEG 2400	3	IEG 3310	3
ERG 2020	3	ERG 2040	3	INE 2810	1
INE 1020	2	IEG 2051	3	Elective	3
INE 1810	1	ERG 2810	1		
—	—		—		—
	16		17		16
Term 4	Units	Term 5	Units	Term 6	Units
CSC 3150	3	General Education	3	General Education	3
IEG 3050	3	ELT 1111	3	INE 3920	5
IEG 3080	3	INE 3910	3	Electives	9
INE 2820	1	SEG 3560	3		
INE 3010	3	Electives	5		
Elective ( Group I)	3		—		—
—	—		17		17
	16				

**SUMMARY**

	Units
General Education	12
Physical Education	2
Major Required Courses	65
Major Electives	12
Free Electives	8
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Total	99

- Notes: 1. Major courses coded 3000 and above will be included in the calculation of the Major GPA for honours classification. Courses with “#” are to be included in the Major GPA as well.
2. Besides the Major courses mentioned in Note 1, all other ACE, CEG, CSC, ELE, ERG, IDE, IEG and SEG courses coded 3000 and above taken by the students will also be included in the calculation of the Major GPA.