

# HEMCHANDRACHARYA NORTH GUJARAT UNIVERSITY, PATAN

## B.C.A. Semester – V

### BCA-504(Elective-III) : Mobile Computing

Teaching Scheme (per week)		Teaching Scheme (per semester)		Examination Scheme					
				INT		EXT		TOTAL	
Th. (hours)	Pr. (hours)	Total Hours	Credit	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)	Th. (marks)	Pr. (marks)
4	--	40	4	30	--	70	--	100	--

#### Unit – I

[18 MARKS]

##### **Introduction to wireless networks and mobile computing Wireless Transmission:**

Frequencies, signals, antennas (Omni directional and directional), signal propagation, Multiplexing (SDM, FDM, TDM, CDM), modulation (ASK, FSK, PSK), spread spectrum, cellular system

##### **Medium Access Control:**

Hidden/exposed terminals, near/far terminals, SDMA, FDMA, TDMA, CDMA

#### Unit-2

[17 MARKS]

##### **Wireless LANs:**

Infra red vs. radio transmission, infrastructure vs. ad-hoc networks IEEE 802.11: architecture, Synchronization, power management, roaming, IEEE 802.11a: 802.11b, Bluetooth overview

##### **Mobile IP:**

Overview, network elements, packet delivery, agent discovery, registration, Tunneling and encapsulation, optimization. IPv6, IP micro-mobility support, DHCP and mobile IP

#### Unit – 3

[18 MARKS]

##### **Mobile Transport Layer:**

**Traditional TCP:** Congestion Control, TCP Slow-start, TCP Fast Retransmit/ Fast Recovery, Implications on Mobility, Classical TCP: Indirect TCP, Snooping TCP, Mobile TCP, Fast Retransmit/fast recovery, Selective retransmission, and Transaction oriented TCP , WWW architectures for mobile computing.

#### Unit – 4

[17 MARKS]

##### **Wireless Telecomm Networks:**

Evolution of wireless telecomm networks; GSM : Mobile services, System architecture, Call Routing, Handover, Security, and New data services., GPRS : Architecture , classes Mobility management, Location update IS -95, CDMA-2000, W-CDMA

**Messaging Services:**

Short Message Services (SMS)-Architecture and benefit, Multimedia Message Services (MMS) Multimedia transmission over wireless.

**Pervasive computing:** Introduction and Applications.

**TEXT BOOKS:**

1. **Mobile communications** ( second edition ) by- Jochen Schiller
2. **Mobile Computing** by:- Dr. N N.JANI, Kamaljit Lakhtaria, Dr. Ashish Jani, Neeta Kanabar.

**Question Paper Scheme:****University Examination Duration: 3 Hours**

Q-1 – Unit -1 (18 Marks)

- K. Objective / Short Questions
- L. Descriptive / Long Questions

Q-2 – Unit -2 (17 Marks)

- K. Objective / Short Questions
- L. Descriptive / Long Questions

Q-3– Unit -3 (18 Marks)

- K. Objective / Short Questions
- L. Descriptive / Long Questions

Q-4 – Unit -4 (17 Marks)

- K. Objective / Short Questions
- L. Descriptive / Long Questions

Note: All Objective/ Short Questions are compulsory, no option will be given.