Department of Computer Applications
National Institute of Technology Tiruchirappalli

1.Course Outline			
Course Title	Mobile and Pervasive Computing		
Course Code	CAS773		
Department	CA	**No. of Credits**	3
Pre-requisites Course Code	CAS769, CAS766	**Faculty Name**	Dr. S.Domnic
E-mail	domnic@nitt.edu	**Telephone No.**	0431-2503745
Course Type	Core		

2. Course Overview

The Mobile and pervasive computing course deals with the study of different mobile computing technologies and their arcitecture. The design and development of mobile and pervasive computing applications for solving real life problems will also be dealt with. Moreover, an introduction to Mobile computing with emphasis on mobile computing architecture, design considerations for mobile computing applications, GSM, GPRS, SMS architecture, emerging technologies, pervasive computing applications, etc, will be dealt with.

3. Course Objectives

- To introduce the characteristics, basic concepts and systems issues in mobile and pervasive computing
- To illustrate architecture and protocols in mobile computing and to identify the trends and latest development of the technologies in the area.
- To design successful mobile and pervasive computing applications and services
- To evaluate critical design tradeoffs associated with different mobile technologies, architectures and interfaces and business models

4. Course Outcomes (CO)

- Analyze the architecture for Mobile computing platform
- Identify and be able to use recent and advanced GSM architecture with emerging tehnologies.
- Explore, evaluate different mobile computing mehodologies.
- Apply the concepts of pervasive computing in real life problems.

5. Course Outcome (CO)	Aligned Programme Outcome (PO)											
	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12
Analyze the architecture for Mobile computing platform	B	B	M	S	S	B	M	M	M	B	M	M
Identify and be able to use recent and advanced GSM architecture with emerging tehnologies	B	B	M	S	S	B	M	M	M	B	M	M
Explore, evaluate different mobile computing mehodologies	B	B	M	S	S	B	M	M	M	B	M	M
Apply the concepts of pervasive computing in real life oroblems.	B	B	M	S	S	B	M	M	M	B	M	M

S = 0.6 M = 0.4 B = 0.0

6. Course Teaching and Learning Activities		
Week	**Mode of Delivery**	**Topics covered**
1.	Class-I	Introduction to Mobile Computing
	Class-II	Mobile computing functions
	Class-III	Mobile Computing devices
2.	Class-I	Mobile Computing Applications
	Class-II	Mobile Computing Architecture, Middlewares
	Class-III	Internet Content Adaptation Protocol, Data tier and webservices
3.	Class-I	Introduction to Design Consideration for mobile computing
	Class-II	Client Context Manager, policy manager, security manager, adaptation manager
	Class-III	GSM architecture, GSM operational architecture, GSM entitites
4.	Class-I	Call routing in GSM, GSM addresses and Identifiers
	Class-II	Network Aspects in GSM, GSM frequency allocation
	Class-III	Authentication and security, Mobile computing through telephone
5.	Class-I	Emerging Technologies: Mobil-IP, RFID, WiMax, Bluetooth
	Class-II	SMS and SMS architecture

Week	Mode of Delivery	Topics covered
	Class-III	Values added service through SMS
6.	Class-I	GPRS and Packet Data Network
	Class-II	GPRS Network Architecture, GPRS network operations, Data services in GPRS, Applications of GPRS, Limitation of GPRS
	Class-III	CDMA and 3G-Spread spectrum technology, CDMAVs.GSM
7.	Class-I	Wireless Data, Third Generation Networks, Applications on 3G
	Class-II	Inrduction to Pervasive Computing
	Class-III	Pervasive Computing Market, m-Business
8.	Class-I	Applications: Retail, Airline
	Class-II	Sales force automation, healthcare
	Class-III	Tracking, Car ITS, WAP
9.	Class-I	Inroduction to Device technology
	Class-II	Hardware devices
	Class-III	Human Machine Interfaces
10.	Class-I	Biometrics
	Class-II	OS
	Class-III	Java for Pervasive devices

The assessment in this course has periodical cycle tests, assignment test /seminar and end semester examination whose details are given in Table 7.The assessment in Theory will be done for a total of 100 marks.The assessment in Practical component has periodical evaluations, record writing, and end semester examination whose details are given in Table 8. The assessment in Practical will be done for a total of 100 marks.

The final marks will be computed for a total of 200 and normalized to 100 based on which the grades will be assigned.

7. Course Assessment Methods

Sl. No.	Mode of Assessment	Week/Date	Duration	Weightage(%)
1.	Cycle Test – 1	4^{th} week	60 Mins	20
2.	Cycle Test – 2	8^{th} week	60 Mins	20
3.	Assignment test/Seminar	9^{th} week	15 Mins	10
6.	End Semester Exam	-	180 Mins	50
			Total	100

8. Essential Readings (Textbooks, Reference books, Websites, Journals, etc.)

References

1. Ashok K. Talukder and Roopa R.Yuvagal, "Mobile Computing 2nd Edition, Tata McGraw Hill, 2010
2. JochenBurkhardt, Horst Henn, Stepfan Heper, Klaus Rindtroff and Thomas Schack, "

Pervasive Computing Technology and Architecture of Mobile Internet Applications", Addison Welsy, 2002.
3. UweHansmann, L.Merk, M. Nicllous, T.Stober and U.Hansmann, "Pervasive Computing', Springer Verlag, 2003

9. Course Exit Survey (mention the ways by which the feedback about the course is assessed and indicate the attainment level)

- The students through the class rep may give their feedback at any time to the course HOD which will be duly addressed.
- The students may also give their feedback during Class Committee meeting.
- 'Course Outcome Survey' form will be distributed on the last working day to all the students and the feedback on various rubrics will be analyzed.
- The COs will be computed after arriving at the final marks.

10. Course Policy (including plagiarism, academic honesty, attendance, etc.)

- **Plagiarism**
  The students are expected to not do malpractice in cycle tests/examinations. If found to copy from bits/other students, action will be taken.
- **Attendance**
  100% is a must. However, relaxation upto 25% will be given for leave on emergency requirements (medical, death, etc.) and representing institute events.
- **Academic Honesty**
  i) Possession of any electronic device, if any, found during the test or exam, the student will be debarred for 3 years from appearing for the exam and this will be printed in the Grade statement/Transcript.
  ii) Tampering of MIS records, if any, found, then the results of the student will be with held and the student will not be allowed to appear for the Placement interviews conducted by the Office of Training & Placement, besides (i).

11. Additional Course Information

- The students can get their doubts clarified at any time with their faculty member with prior appointment.

For Senate's Consideration

(Dr.S.Domnic)	(Dr.U.Srinivasulu Reddy)	(Dr.A.Vadivel)
Course faculty	Class Committee Chairperson	HoD