Programme Evaluation Committee Proceedings
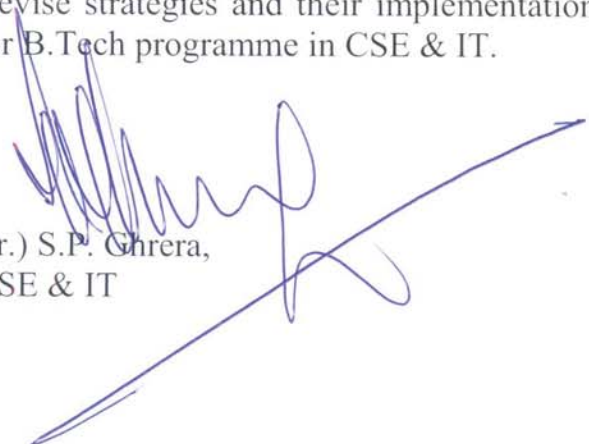
Department of CSE & IT

Index

Constitution of Program Evaluation Committee

The departmental program evaluation committee is constituted and the members are given as under:

1. Prof. S.P. Ghrera, HOD, CSE & IT Department (Chair Person)
2. Dr. Vivek Sehgal, Associate Professor
3. Dr. Yashwant Singh, Assistant Professor (Senior Grade)
4. Dr. Hemraj Saini, Assistant Professor (Senior Grade)
5. Dr. Pardeep Kumar, Assistant Professor (Senior Grade)
6. Dr. Rajni Mohana, Assistant Professor (Senior Grade)
7. Mr. Amit Kumar Singh, Assistant Professor

The committee members are responsible to the following

1. Analysis of feedback provided by different stakeholders including students, parents, employers from industry and academia.
2. Correlate the feedback with the PEO's (Program Educational Objectives) for Bachelor of Technology in Computer Science & Engineering and PEO's (Program Educational Objectives) for Bachelor of Technology in Information Technology.
3. Devise strategies and their implementation schemes to fully achieve PEOs for B.Tech programme in CSE & IT.

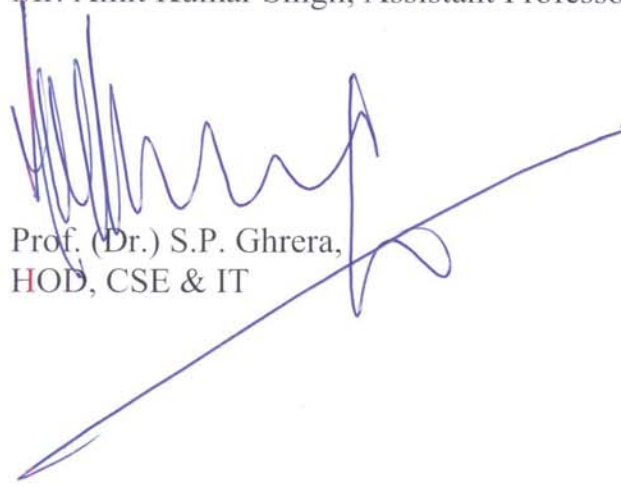Prof. (Dr.) S.P. Ghrera,
HOD, CSE & IT

Notice

Meeting of Programme Evaluation Committee

The meeting of programme evaluation committee for B.Tech programme in CSE & IT will be held on 10th August, 2015. The following are requested to attend:

1. Prof. S.P. Ghrera, HOD, CSE & IT Department (Chair Person)
2. Dr. Vivek Sehgal, Associate Professor
3. Dr. Yashwant Singh, Assistant Professor (Senior Grade)
4. Dr. Hemraj Saini, Assistant Professor (Senior Grade)
5. Dr. Pardeep Kumar, Assistant Professor (Senior Grade)
6. Dr. Rajni Mohana, Assistant Professor (Senior Grade)
7. Mr. Amit Kumar Singh, Assistant Professor

Prof. (Dr.) S.P. Ghrera,
HOD, CSE & IT

Programme Evaluation Committee Meeting

Department of Computer Science & Engineering and Information Technology

The meeting of Program Evaluation Committee in Computer Science & Engineering and Information Technology department held on 10th August, 2015 at 11:00 A.M. in the Board Room, Jaypee University of Information Technology, Waknaghat. The following members were present:

1. Prof. S.P. Ghrera, HOD, CSE & IT Department (Chair Person)
2. Dr. Vivek Sehgal, Associate Professor
3. Dr. Yashwant Singh, Assistant Professor (Senior Grade)
4. Dr. Hemraj Saini, Assistant Professor (Senior Grade)
5. Dr. Pardeep Kumar, Assistant Professor (Senior Grade)
6. Dr. Rajni Mohana, Assistant Professor (Senior Grade)
7. Mr. Amit Kumar Singh, Assistant Professor

PROGRAM EVALUATION COMMITTEE REPORT FOR BACHELOR OF TECHNOLOGY IN COMPUTER SCIENCE & ENGINEERING AND INFORMATION TECHNOLOGY

Agenda for the Program Evaluation Committee Meeting in the department of Computer Science & Engineering and Information Technology- 10th August, 2015

Point No 1: To discuss the assessment of the PEO's (Program Educational Objectives) for Bachelor of Technology in Computer Science & Engineering.

Point No 2: To discuss the assessment of the PEO's (Program Educational Objectives) for Bachelor of Technology in Information Technology.

Point No 3: To discuss the modification in different course curricula, course and project management schemes to fully achieve PEO's (Program Educational Objectives of B.Tech CSE and B.Tech IT programme.

Discussions:

Point No 1: The committee examined the feedback received from various stakeholders like students, parents and employers from industry and academia and assessed the achievement of PEO's (Program Educational Objectives of B.Tech CSE programme on a scale of 100. The results of evaluation are given below:

Program Educational Objectives-CSE

Serial Number	PEOs	Assessment in %age
1	Engineering Ethos: To bring the physical, analytical and computational approaches of CSE to bear on the challenges they take on, abstracting essential structure, recognizing sources of uncertainty, and applying appropriate models, technical tools, and evaluations to develop their solutions.	90
2	Leadership: To bring to their careers the self-assurance, integrity, and technical strengths that drive innovation and the communication and collaboration skills to inspire and guide the groups they work with in bringing their ideas to fruition.	95
3	Versatility: To develop abilities and talents leading to creativity and productivity in fields and professions beyond the regular CSE curriculum.	90
4	Engagement: To promote life-long self learning abilities to remain professionally effective to the society at large.	90
5	Diversification: To promote among student graduates the ability to	80

	gain multidisciplinary knowledge through projects and industrial training, leading to a sustainable competitive edge in R&D and meeting societal needs.	
6	Projects: To inculcate group work and team management skills with cross-cultural etiquettes, promoting knowledge transfer leading to conceptualization and delivery of projects with varied complexity	80
7	Ethics and Attitudes: To sensitize students towards issues of social relevance, openness to other international cultures and to introduce them to professional ethics and practice.	95

Point No 2: The committee examined the feedback received from various stakeholders like students, parents and employers from industry and academia and assessed the achievement of PEO's (Program Educational Objectives of B.Tech IT programme on a scale of 100. The results of evaluation are given below:

Program Educational Objectives-IT

Serial Number	PEOs	Assessment in %age
1	To provide student graduates with a solid foundation in mathematical, scientific and engineering fundamentals required to develop problem solving ability.	95
2	To prepare student graduates for a successful career with effective communication skills, teamwork skills and work with values that meet the diversified needs of industry, academia and research.	85
3	To train students in comprehending, analyzing, designing and creating novel products and technologies that provide solution frameworks to real world problems.	90
4	To promote awareness among student graduates towards issues of social relevance and introduce them to professional ethics and practice.	90
5	To inculcate in student graduates the ability to gain multidisciplinary knowledge through projects and industrial training, providing a sustainable competitive edge in R&D and meeting industry needs.	80
6	To develop self-learning ability in graduates by inculcating the philosophy to continuously learn, innovate and contribute to creation of new knowledge for the benefit of the society at large.	95
7	To inculcate in graduates the qualities of leadership for technology innovation and entrepreneurship.	95

Point No 3: The committee considered the modification of syllabus in respect of following courses

    (i)   **Big Data Analytics**
    (ii)   **Mobile Computing**
    (iii)   **Web Application Engineering**
    (iv)   **Information Retrieval & Data Mining**
    (v)   **ARM based Embedded System Design**

Minutes of the meeting

Department of Computer Science & Engineering and Information Technology

Minutes of meeting of Program Evaluation Committee in Computer Science & Engineering and Information Technology department held on 10th August, 2015 at 11:00 A.M. in the Board Room, Jaypee University of Information Technology, Waknaghat. The following members were present:

1. Prof. S.P. Ghrera, HOD, CSE & IT Department (Chair Person)
2. Dr. Vivek Sehgal, Associate Professor
3. Dr. Yashwant Singh, Assistant Professor (Senior Grade)
4. Dr. Hemraj Saini, Assistant Professor (Senior Grade)
5. Dr. Pardeep Kumar, Assistant Professor (Senior Grade)
6. Dr. Rajni Mohana, Assistant Professor (Senior Grade)
7. Mr. Amit Kumar Singh, Assistant Professor

Resolutions:

The following resolutions were adopted

1. It was resolved to modify syllabus of following electives including Big Data Analytics, Mobile Computing, Web Application Engineering, Information retrieval and data mining and ARM based Embedded System Design to bring the physical, analytical and computational approaches of CSE to bear on the challenges they take on, abstracting essential structure, recognizing sources of uncertainty, and applying appropriate models, technical tools, and evaluations to develop their solutions.
2. It was resolved to adopt T-1, T-2 and T-3 scheme of evaluating theory courses to promote life-long self learning abilities to remain professionally effective to the society at large.
3. It was resolved to include multi disciplinary projects having supervisors from other departments like electronics and communication, bioinformatics etc to promote among student graduates the ability to gain multidisciplinary knowledge through projects and industrial training, leading to a sustainable competitive edge in R&D and meeting societal needs and to inculcate group work and team management skills with cross-cultural etiquettes, promoting knowledge transfer leading to conceptualization and delivery of projects with varied complexity.
4. It was resolved to accept the evaluation of PEOs.

HOD CSE & IT

15B1WCI833: Big Data Analytics

Course Credit: 3
Semester: VIII

Introduction

This course introduces basic technology (algorithms, architectures, systems) and advanced research topics in connection with large-scale data management and information extraction techniques for big data. The course will start by introducing the fundamentals of Big data and cover modern distributed database systems and algorithms and Big data systems adopted in industry and science applications. Distributed storage and parallel processing and architectures that support data analytics will be examined, and students will learn how to implement a distributed data processing system. The course will also cover critical topics in mining and knowledge discovery of big data, with applications in social analytics, cyber security, and information networks, among others that are already in public eye.

Course Objectives (Post-conditions)

Knowledge objectives:

1. Describe how to represent data and information for processing.

2. Evaluate different methodologies for effective application of data mining.

3. Define "speed-up" and explain the notion of an algorithm's scalability.

4. Explain basic statistical concepts and their areas of application.

5. Parallelize an algorithm by applying data-parallel decomposition.

6. Decompose a problem using map and reduce operations.

7. Discuss the importance of elasticity and resource management in cloud computing.

Application objectives:

1. Understand and apply the Big Data Flow to actual projects.

2. Being able to describe and apply the Data Analytics lifecycle to Big Data projects and lead other team members in the process.

Expected Student Background (Preconditions)

1. Good knowledge of Statistics
2. Working knowledge of databases

Good knowledge of data structures and algorithms

Topics Outline:

Serial Number	Topics	Hours
1	Introduction to Big Data: Big data time line, Why this topic is relevant now? Is big data fad? Where using big data makes a difference? Introduction to statistical modeling and machine learning, Ordinary data processing versus big data processing: Challenges and opportunities	3
2	Map Reduce and the New Software Stack: Distributed File Systems, Map Reduce, Algorithms Using Map Reduce, Complexity Theory for Map Reduce	3
3	Mining Data Streams: The Stream Data Model, Sampling Data in a Stream, Filtering Streams, Counting Distinct Elements in a Stream, Estimating Moments and Windowing, Decaying Windows	5
4	Link Analysis: Page Rank and Efficient Computation of Page Rank, Topic-Sensitive Page Rank, Link Spam, Hubs and Authorities	5
5	Frequent Item sets from Big	7

	Data: The Market-Basket Model, Market Baskets and the A-Priori Algorithm, Handling Larger Datasets in Main Memory, Limited-Pass Algorithms, Counting Frequent Items in a Stream	
6	Clustering for Big Data: Introduction to Clustering Techniques, Hierarchical Clustering, Clustering in Non-Euclidean Spaces, Clustering for Streams and Parallelism	8
7	Mining Social Network Graphs: Social Networks as Graphs, Clustering of Social-Network Graphs, Direct Discovery of Communities, Partitioning of Graphs, Finding Overlapping Communities, Neighborhood Properties of Graphs	6
8	Recommendation Systems: A Model for Recommendation Systems, Content-Based Recommendations, Collaborative Filtering and Dimensionality Reduction	5
	Total Lectures	42

References

1. Anand Rajaraman and Jeffery David Ullman, Mining of Massive Datasets, Cambridge University Press, 2012
2. Jared Dean, Big Data, Data Mining and Machine Learning, Wiley Big data Series, 2014
3. Judith Hurwitz, Alan Nugent, Fern Halper and Marica Kaufman, Big Data for Dummies, Wiley Press, 2013

Evaluation Scheme:

S. No.	Examination	Marks
1	T1	15
2	T2	25
3	T3	35
4	* Internal Marks	25

*Internal Marks Breakdown:

Assignments 9 marks (3x3)

Quizzes 12 marks (3x4)

Regularity 4 Marks

15B1WCI731: Mobile Computing

Course Credit: 3
Semester: VII

Introduction

Mobile Phones have emerged as truly pervasive and affordable information and communication technology platform in the last decade. So there is a growing need for a course which can teach students the skills needed to program and configure mobile devices and networks, enabling them to develop new and exciting applications for existing and emerging hardware technology. The objective of the course is to equip students on the fundamentals of mobile computing and the design mobile services. Learn the issues in mobile computing and communications from the hard- ware and software perspective. Understand the mobile IP stack and mobile web access, technologies and services.

Course Objectives (Post-conditions)
Knowledge objectives:
At the conclusion of the course, following learning objectives are expected to be achieved:
1. Introduce enabling technologies of pervasive computing.
2. Acquire solid knowledge on mobile networks and mobile computing.
3. Develop applications that are mobile-device specific and demonstrate current practice in mobile computing contexts.
4. Understand the concepts of Adhoc and wireless sensor networks.
5. Understand the concepts of Mobile IP.
6. To be able to analyze the performance of different handoff, roaming, and location update algorithms for cellular networks.
7. Awareness of professional and ethical issues, in particular those relating to security and privacy of user data and user behavior.
8. Describe the possible future of mobile computing technologies and applications.

Application objectives:
At the conclusion of the course, following learning objectives are expected to be achieved:
- ➢ Develop applications that are mobile-device specific and demonstrate current practice in mobile computing contexts.
- ➢ Develop Android specific applications
- ➢ Develop Windows specific applications
- ➢ To be able to analyze the performance of different handoff, roaming, and location update algorithms for cellular networks.

Expected Student Background (Preconditions)

Students are expected to have a solid grasp of the introduction to computer programming.

Topics Outline:

S NO	Topics	Hrs
1.	Introduction to Ubiquitous Computing	1
2.	Introduction to Android Operating system • Introduction to the emerging technology • Architecture • Installation Setup • The Activity Class • The Intent Class • Permissions • Creating the UI • Storing and Retrieving Data • User Notifications • Broadcast Receivers • Networking • Location and maps • Sensors	9
3.	Introduction to Windows Operating Systems • Architecture • Installation Setup • Introduction to XAML • Understanding the Navigation Model • Understanding the apps lifecycle and managing states • Building UI • Sensors • Storing and Retrieving data	9
4.	Mid Sem project demo	1
5.	WiFi • Physical Layer • Channel Coding • How the physical layer works • Link Layer MAC Protocols • Link Adaption Protocols • Energy Efficiency in WiFi • Cellular Systems	6
6.	Mobile IP • Mobility in Network Layer • Internet protocols for Mobile Applications • Single Hop Mobility • Mobile IP and Issues	4

	• Handoff Issues	
7.	Routing • Routing Protocols in MultiHop Networks • MultiHop routing metrics	3
8.	MANET	2
9.	Student presentations on Emerging New Technologies in Mobile Computing Area	4-5
10.	End Sem Project Demo	2
	Total	42

References

1) Beginning Android Application Development by Wei-Meng Lee, Wiley Publication
2) Windows Phone 8 Development Internals by Andrew Whitechapel, Sean McKenna
3) Handbook of wireless networks and mobile computing by Ivan Stojmenovi
4) An Overview of Routing Protocols in Mobile Ad-Hoc Network by Dr.S.S.Dhenakaran, A.Parvathavarthini
5) Professional Android Application Development by Reto Meier, Wiley publication
6) Windows Phone 8 Guide for Android Application Developers by Microsoft Open Technologies, Inc.
7) Wireless Communications and Networks by William Stallings, Second Edition

Evaluation Scheme:

S.No	Examination	Marks
1	T-1	15
2	T-2	25
3	T-3	35
4	*Internal Marks	25

*Internal Marks Breakdown:

Assignments   9 marks (3x3)

Quizzes   12 marks (3x4)

Regularity   4 Marks

10B22CI521: Web Application Engineering

Course Credit: 4
Semester: V

Introduction

This course involves study of the necessary theoretical foundations to design and develop state-of-the art web applications. Next to the technical aspects to develop applications for the web, business aspects are covered with the most common business models and explained with real-world examples.

The course will be supplemented by a separate Lab course in which the students learn how to design a good web site using the web technology tools (HTML, CSS, JavaScript, DHTML, XML and PHP). Technical aspects for the development of web applications are presented along with generic platforms and architectures. Students participating in the exercise apply this knowledge in individual projects that cover all aspects from the lecture/lab with the design and development of a web application. Students are strongly encouraged to participate actively in class discussions.

Course Objectives (Post-conditions)
Knowledge objectives:
1. You will broaden your knowledge of WWW ,Internet, HTTP, URL, DNS, Web browser, Web Server and FTP
2. You will become aware of the benefits and future of Web Applications
3. You will increase your proficiency in Scripting languages.
4. You will know the Web Architecture and how a Web client-server interaction happens.
5. You will Know the Website Development Process
6. You shall be exposed to various client side and server side technologies required to design web sites
7 You will know how a search engine and Meta search engine works and advantages and disadvantages of Meta search engine over a search engine.
Application objectives:
The lab work and homework portions of the course are intended to help you apply your understanding,
1. To develop and implement client-side and server-side scripting language programs that meet stated specifications.
2. To develop and implement, and demonstrate Database Driven Websites through a project that meet stated specifications.
Expected Student Background (Preconditions)
Introduction to Computer Programming, DBMS (Those who are simultaneously registered in DBMS can a   also take this course)
Topics Outline:

S NO	Topics	Hrs
1	Developing Simple Web Applications like Information System Front-end, Quizzes ,Puzzles, Crosswords, Tic Tac Toe ,Sudoku etc:- Concepts of	9

	Internet and WWW, HTTP and Web Server Basics, Web Applications, Application server ,Basic Web Architecture ,Security, Performance of web applications ,Evolution of Markup Languages - SGML, HTML, XML and XHTML ,WML. HTML and its markup tag HTML Frames, Tables, Images and Forms. DHTML and Cascading Style Sheets .WML and its markup tags .Client Side Scripting Technology-Java Script	
2	Developing Database Driven Websites like Student Information System, Learning Management System:- Web Development Life Cycle ,PHP, User interaction through Forms, Forms Validation, Cookies and Session Management, File Handling, File Uploading using Forms, PHP and MYSQL database connectivity., Graphics in PHP ,JDBC	12
3	Developing Multiplayer games with 2D,3D Graphics:- Java Applets, Multi Threading , Network programming, AWT Package, Layout Managers, Java 2d graphics, Java 3d graphics	13
4	Using XML for Database Driven Websites and Online games:-Basics of XML and components of XML Documents, Creating markup with XML, Graphics in XML , Using XML for designing Game Objects, Defining structure of XML Documents using Document Type Definition (DTD), Giving Structure to XML Documents by Schema Definition Language, XML Technologies-XSLT, XQUERY and XPATH expressions, XML Documents processing using DOM and SAX parsers,	10
	Total	44

References

1. "Web Enabled commercial Application development using HTML,DHTML, Java Script, Perl CGI" by Ivan Bayross, BPB Publication
2. "Internet and World Wide Web – How to Program" by Deitel, Deitel and Nieto ,Pearson Education Asia Publication
3. "Learning WML, and WMLScript Programming the Wireless Web" By Martin Frost, Oreilly
4. "Getting Started with WAP and WML" by Huw Evans , Paul Ashworth ,SYBEX publications
5. "PHP and MYSQL Manual" by Simon Stobart and Mike Vassileiou

6. "PHP and MYSQL Web Development" by Luke Welling and Laura Thomson(Pearson Education
7. "PHP 5 Unleashed" by John Coggeshall.
8. "The XML Bible", by Elliotte Rusty Harold
9. "SVG Essentials", by J. David Eisenberg, Orielly
10. "Step by Step XML" by Michael J. Young Prentice Hall Of India

Evaluation Scheme:

S.No	Examination	Marks
1	T-1	15
2	T-2	25
3	T-3	35
4	*Internal Marks	25

*Internal Marks Breakdown:

Assignments   9 marks (3x3)

Quizzes   12 marks (3x4)

Regularity   4 Marks

11B1WCI832: Information Retrieval and Data Mining

Course Credit: 3
Semester: VII

Introduction:

Data mining is an interdisciplinary subject, and more appropriately named "knowledge mining from data". However, it is also known as knowledge discovery from data (KDD).

Course Objectives (Post-conditions) Knowledge objectives:
- Good knowledge to Mine Data from Large Amount of Data Sources
- You will be able to compare a two different data set and you can find out which one is better
- You will be able to apply many retrieval techniques on a given document
- You will be able apply some pattern matching algorithm and map the various expected pattern depend upon usage requirements

Application objectives:

Data Mining and Information Retrieval have tremendous advantages in term of their application areas which include; Financial Data Analysis, Retail and Telecommunication Industries, Intrusion Detection and Prevention, Bioinformatics and many more.

Expected Student Background (Preconditions)

Database Management Concepts, Probability and Basic Mathematical Concepts

Topics Outline:

Serial No.	Topics	Hrs
1	Introduction to Data Mining	1
2	Data Preprocessing	7
3	Data Generalization, Data Warehousing, and On-line Analytical Processing	8
4	Association Rule Mining and Frequent Patterns	4

5	Classification and Prediction	4
6	Cluster Analysis	5
7	Introduction to Information Retrieval	1
8	Boolean Retrieval	2
9	Probabilistic Information Retrieval	3
10	Vector Support Machines	3
11	Pattern Matching Algorithm	2
12	Link Analysis	2
		Total Hours = 42

Text Book(s):

1. **Jiawei Han and Micheline Kamber, "Data Mining, Concepts and Techniques", Elsevier 2nd edition.**
2. **An introduction to Information Retrieval, 2008 Cambridge UP.**
3. **Thomas H. Corman, Charles E. Leiserson, and Ronald L. Rivest, Introduction to Algorithms,. The MIT Press,England, 1989.**

Reference Book(s):

1. **Pang-Ning Tan, Michael Steinbach, Vipin Kumar, "Introduction to Data Mining ", Pearson Education.**
2. **Richard O. Duda, Peter E. Hart, David G. Stork , "Pattern Classification", 2nd Edition, Wiley Publication, November 2000.**
3. **Rijsbergen C. J. ,"Information Retrieval" 2nd edition.**

Evaluation Scheme:

S.No	Examination	Marks
1	T-1	15
2	T-2	25
3	T-3	35
4	INTERNAL	25
		Total Marks: 100

Internal Marks Breakdown:

Assignments: 9 marks (3x3)
Quizzes: 12 marks (3x4)
Regularity: 4 Marks

13B1WCI731: ARM Based Embedded System Design

Course Credit: 3
Semester: VII

Introduction

ARM designs the world's most popular processor architecture for embedded systems. The technology can be found at the heart of advanced digital products, from wireless, networking and consumer entertainment solutions to imaging, automotive, security and storage devices. This course is designed to provide the necessary knowledge to develop software for an ARM based system targeted in embedded software development. Topics cover the software aspects of ARM system which including assembly and C language programming and an introduction to the control and interfacing of embedded systems. Upon completion, students will understand the ARM architecture development, and will be familiar with supporting hardware and embedded system development process.

Course Objectives (Post-conditions)
Knowledge objectives:

1. Describe the architecture of a typical embedded RISC processor (e.g. ARM Cortex-M3)
2. Develop an understanding of the instruction set and addressing modes
3. Write programs that exercise a range of typical microcontroller peripherals (e.g. GPIO, USART, ADC, etc...)
4. Use a typical toolchain to implement and test simple embedded microcontroller applications in C and assembly language
5. Evaluate the requirements for embedded Real Time Operating Systems (RTOS)
6. Understand the structure of a RTOS (e.g. eLinux)

Application objectives:

1. Introduction to embedded systems, overview of the design flow
2. Embedded system specification and modeling
3. Embedded hardware platforms and peripherals
4. Interfacing to the external world through sensors and actuators
5. Design and synthesis of ASIC hardware
6. Software organization, scheduling, and execution
7. Embedded and real-time operating systems
8. Wired communication and bus protocols
9. Basics of wireless communication and embedded networking
10. Energy management and low-power design
11. Safety and reliability in embedded systems
12. Secure embedded system design

Expected Student Background (Preconditions)

C/C++ Programing, Assembly programming, Computer architecture, Digital design

Topics Outline:

S NO	Topics	Hrs
1	Computer Architecture Introduction	4
2	ARM Software Development Tools and ARM Architecture Fundamentals	4
3	ARM Instruction Set Architecture and Addressing Mode	5
4	ARM Assembly Language Programming Basics	4
5	More on ARM Assembly Language Programming	3
6	The Thumb Instruction Set	4
7	Exception and Interrupt Handling	3
8	ARM Processor Architecture	4
9	Startup Sequence and ARM Based Hardware Consideration	2
10	Introduction to Debug Tools for ARM Based Systems	2
11	ARM Test Revision	2
12	ARM on virtual machine	2
13	ARM Exam Revision	2
	Total	41

References

1. ARM Architecture Reference Manual (local copy)
   ARM7TDMI Technical Reference Manual (local copy)
   ARM7TDMI Instruction Set Reference (local copy)
2. ARM7TDMI Quick Reference (local copy)
3. An Introduction to the GNU Assembler
4. An Introduction to the GNU Compiler
5. An Introduction to GNU Debugger
6. ARMv4T Partial Instruction Set Summary
   Pete Cockerell has put the text of his 1987 book "ARM Assembly Language Programming" on the web (local copy)
7. A book by Peter Knaggs and Stephen Welsh, ARM: Assembly Language Programming @2004 - download for free (local copy)
8. ARM System-On-Chip Architecture (2nd Edition) by Steve Furber (the father of the ARM processor) - download for free (local copy)

Evaluation Scheme:

S.No	Examination	Marks
1	T-1	15
2	T-2	25
3	T-3	35
4	*Internal Marks	25

*Internal Marks Breakdown:

Assignments   9 marks (3x3)

Quizzes   12 marks (3x4)

Regularity   4 Marks