

Four Year Degree Course in Engineering & Technology
Course and Examination Scheme with Credit Grade System
Fifth Semester B.E. (Information Technology)

Course Code	Course Title	Teaching Scheme				Examination Scheme									
		Hrs. per week			No. of Credits	Theory						Laboratory			
		L	T	P		Duration of Paper (Hrs.)	Max. Marks ESE	Max. Marks		Total	Min. Passing Marks	Max. Marks TW	Max. Marks POE	Total	Min. Passing Marks
								Sessional							
MSE	IE														
IT501	Microprocessors and Microcontrollers	3	1	0	3	3	80	10	10	100	40	--	--	--	--
IT502	Web Technology	3	1	0	3	3	80	10	10	100	40	--	--	--	--
IT503	Object Oriented Programming	3	1	0	3	3	80	10	10	100	40	--	--	--	--
IT504	Software Engineering	4	1	0	5	3	80	10	10	100	40	--	--	--	--
IT505	Design Analysis Of Algorithm	3	1	0	4	3	80	10	10	100	40	--	--	--	--
Laboratories															
IT506	Microprocessors and Microcontrollers	0	0	3	2	--	--	--	--	--	--	25	25	50	25
IT507	Web Technology	0	0	3	2	--	--	--	--	--	--	25	25	50	25
IT508	Object Oriented Programming	0	0	3	2	--	--	--	--	--	--	25	25	50	25
IT509	Engg. Proficiency-I	--	--	--	--	--	--	--	--	--	--	50	--	50	25
Total		16	5	9	--	--	--			500	--	--	--	200	--
Semester Total Credits		30			24	700									

Gondwana University, Gadchiroli – 442 605
Faculty of Engineering & Technology
B.E. (Information Technology)

Summarised Statement Showing Various Parameters of Course and Examination Scheme

Sr No	Semester	No of Theory	No of Labs/Pract	Teaching Hours (L + T)	Teaching Hours (P)	Total No of Credits	Max Marks Theory	Max Marks Labs/Pract	Max Marks Total
1	I	4	4	17	13	26	400	250	650
2	II	5	4	21	15	30	350	250	600
3	III	5	3	20	09	23	500	150	650
4	IV	5	3	21	08	25	500	150	650
5	V	5	3	21	09	24	500	200	700
6	VI	5	4	22	12	26	500	250	750
7	VII	5	4	19	11	25	500	250	750
8	VIII	5	3	19	11	27	500	250	750
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Subject wise Board of Studies (BOS) Affiliation

Board of Studies	Subject Codes
Applied Sciences & Humanities	IT 301, IT 401
Electronics	IT303, IT304, IT501, IT603

Course Code: IT501
Title of the Course: Microprocessor and Microcontroller

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	Introduction to 16-bit Microprocessor 8086: Architecture of 16 bit Microprocessor 8086 , concept of pipelining and memory segmentation , logical address, offset address and physical address, Bus Interface Unit (BIU),Execution Unit (EU), segment registers, Pin functions, Minimum and Maximum mode of operation, addressing modes, Instruction set, assembler directives, Assembly Language programming.	9
II	Interrupt Structure and Memory Interfacing: Stack structure of 8086, Interrupts and interrupt service routines, processing of interrupt, Internal and External interrupts, Interrupt Priorities, Memory Interfacing Concepts, Interfacing of 8086 Microprocessor with memory ICs.	9
III	Programmable Peripheral Devices-I : Modes of operation of 8255, Interfacing of 8255 with 8086,Interfacing of ADC & DAC, Programmable Interval Timer 8254: Architecture and Signal Descriptions, Operating Modes, Programming and Interfacing	9
IV	Programmable Peripheral Devices-II: Programmable Interrupt Controller 8259: Architecture and Signal Descriptions ,Command Words and Modes of Operations, Programming and Interfacing ; Keyboard /Display Controller 8279: Architecture and Signal Descriptions , Modes of operations , Programming and Interfacing	9
V	Microcontroller 8051: Introduction to 8051 family architecture, pin diagram, architecture of 8051, memory organization, counters and timers, addressing modes, SFR, flags, 8051 Instruction set, interrupts structure	9
Total		45

Text Book/s:

1. Advanced Microprocessor and Peripherals- A.K.Ray and K.M. Bhurchandi, Tata McGraw Hill.
2. Microcomputer systems 8086/8088 family, Architecture, Programming and Design - Yu-Cheng Liu & Glenn A Gibson, 2nd Edition- July 2003, Prentice Hall of India
3. The 8051 microcontroller and embedded systems, Volume 1 Muhammad Ali Mazidi, Janice Gillispie Mazidi

Reference Book/s:

1. Microprocessor and Interfacing, Programming & Hardware- Douglas V Hall, 2nd Edition, Tata McGraw Hill
2. Microprocessors: The 8086/8088, 80186/80286, 80386/80486 and the Pentium Family Bahadure, N. B., - Prentice Hall of India Private Limited
3. The 8051 Microcontroller,architecture,programming and application,-- [Kenneth J. Ayala](#),Western calarina University

Course Code: IT502
Title of the Course: Web Technologies

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	Introduction to Web Technologies: OSI reference Model, understanding 3-tier web architecture, Web browsers, Overview of HTTP, Cookies. Basic tools of Internet access: WWW, Email, FTP, HTTP, HTTPS, URL, URI, POP3, MIME, Client Server Architecture, Introduction to HTML, DHTML and JavaScript.	9
II	HTML: HTML document structure, Creating headings and paragraphs on a web page, working with links, Image Mapping, tables, frames, Introduction of Forms and HTML controls, Introduction to CSS and its types	9
III	Introduction to CGI, Architecture of CGI, Working with environment variables, Sending information to the web server. Introduction to Sockets, Creating and closing sockets, Socket Programming, C programming on Linux platform.	9
IV	Introduction to XML, goals of XML, XML basics: XML structures and syntax, valid V/s well-formed XML, Document Classes, DTD (document type definition) classes	9
V	Scripting XML: The XML processor, parent child relationship, XML as a data: data type in XML, XML namespaces, linking with XML: simple link the HTML way. XSL: XML with style: style sheet basics, XSL style sheets.	9
Total		45

TEXT BOOK:

1. William J. Pardhi – XML in Action Web Technology

REFERENCES:

1. Web Technologies – Black Book
2. Complete reference HTML, TMH, 4th Ed
3. JavaScript Bible, Wiley Pub
4. HTML, DHTML, JavaScript, Perl & CGI Ivan Bayross, BPB Pub, 3rd Ed

Course Code: IT503
Title of the Course: Object Oriented Programming

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	3	3	3	10	10	80	100

Unit	Contents	Hours
I	Object oriented programming paradigm, Basic concept of object oriented programming. Benefits of OOP. Application of OOP. Structure of C++ program. Scope resolution operator. Memory management operators. Type cast operators. Member differencing operators. OOP vs procedure oriented programming.	9
II	Inline function. Arrays with in class. Memory allocation for objects. Static data member static member function. Array of objects. Objects as function arguments. Returning objects. Constructors and its types. Destructors.	9
III	Overloading , function overloading. Concept of friend function. Operator overloading. Unary operator overloading. Binary operator overloading. Overloading binary operator using friends. Manipulation of strings using operators. Type conversions.	9
IV	Inheritance-single inheritance. Multilevel inheritance. Multiple inheritance. Constructors in derived class. Pointer to object. This pointer. Pointer to derived class. Virtual function. Pure virtual function. Abstract classes.	9
V	Working with files. Opening and closing of files. Sequential and random access files. File pointer and their manipulations. Command line arguments. Introduction to templates. Class templates. Function templates. Exception handling in C++.	9
Total		45

Text Book/s:

1.Object Oriented Programming with C++ by Balaguruswamy TMH Pub

Reference Book/s:

1.Let us C++ by Yashwant Kanetkar BPB Pub

2. Object Oriented Programming in C++ by Thapi Mantha DreamTech Pub

Course Code: IT504
Title of the Course: Software Engineering

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
4	1	0	5	5	3	10	10	80	100

Unit	Contents	Hours
I	Introduction to Software and Engineering Approaches: Introduction of Software, The evolving Role of Software, Software characteristic, Software Application, Software Crisis, Software Myths. Software Engineering Approach, A Generic View of Software Engineering, Software Process, Software Process Models - Waterfall Model, Prototype Model, Incremental Model, Spiral Model, COCOMO Model.	9
II	Software Process, Project Metrics and Project Planning: Measures, Metrics and Indicators, Metrics in the Process and Project Domains, Software Measurement, Metrics for Software Quality, Integrating Metrics within the Software Engineering Process. Project Planning Objectives, Software Scope, Resources, Software Project Estimation, Decomposition Techniques, Empirical Estimation Models, the Make-Buy Decision.	9
III	Software Requirement Definition and Design: Software requirement Specification, Formal Specification Techniques, Languages and Processors for Requirement Specification. Fundamental Design Concepts, Modules and Modularization Criteria, Design Notation, Design Techniques, Detailed Design Consideration.	9
IV	Implementation Issues, Verification and Validation: Structured Coding Techniques, Coding Styles, Standards and Guidelines, Documentation Guidelines. Quality Assurance, Walkthroughs and Inspections, Symbolic Execution, unit testing and Debugging, System Testing, Formal Verification.	9
V	Risk Management and Maintenance: Software Risks, Risk Identification, Risk Projection, Risk Mitigation, Monitoring, and Management. Introduction, Enhancing Maintainability during Development, Configuration Management, Managerial Aspects of Software Maintenance, Source-Code Metrics, Other Maintenance Tools and Techniques	9
Total		45

Text Book/s:

1. Software Engineering: a practitioner's approach: Roger S. Pressman
2. Software Engineering Concepts: Richard Farley

Reference Book/s:

1. Sommerville, Ian. "Software Engineering". Addison-Wesley, 2004.
2. Rajib Mall, Fundamentals of Software Engineering, Prentice Hall India.
3. Pankaj Jalote, An integrated approach to Software Engineering, Springer/Narosa.

Course Code: IT505
Title of the Course: Design Analysis Of Algorithm

Course Scheme					Evaluation Scheme (Theory)				
Lecture	Tutorial	Practical	Periods/week	Credits	Duration of paper, hrs	MSE	IE	ESE	Total
3	1	0	4	4	3	10	10	80	100

Unit	Contents	Hours
I	Algorithm Analysis – Time Space Complexity – Asymptotic Notations – Recurrence equations – Solving recurrence equations –Characteristic equations	9
II	Divide and Conquer: General Method – Binary Search – Finding Maximum and Minimum – Merge Sort – Greedy Algorithms: General Method – Knapsack Problem-Job scheduling with or without deadline	9
III	Dynamic Programming: General Method – Multistage Graphs – All-Pair shortest paths – Optimal binary search trees – 0/1 Knapsack – Travelling salesperson problem Longest common subsequence	9
IV	Backtracking: General Method – N Queens problem – sum of subsets – graph coloring – Hamiltonian problem	9
V	Introduction to NP-Hard and NP-Completeness-SAT-Independent Set-3VC-Exact cover-MultiSet-Subset sum and partition.	9
Total		45

TEXT BOOK:

1. Ellis Horowitz, Sartaj Sahni and Sanguthevar Rajasekaran, Computer Algorithms/ C++, Second Edition, Universities Press, 2007. (For Units II to V)
2. K.S. Easwarakumar, Object Oriented Data Structures using C++, Vikas Publishing House pvt. Ltd., 2000 (For Unit I)

REFERENCES:

1. T. H. Cormen, C. E. Leiserson, R.L.Rivest, and C. Stein, "Introduction to Algorithms", Second Edition, Prentice Hall of India Pvt. Ltd, 2003.
2. Alfred V. Aho, John E. Hopcroft and Jeffrey D. Ullman, "The Design and Analysis of Computer Algorithms", Pearson Education, 1999.

Course Code: IT506

Title of the Course: Microprocessor and Microcontroller

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	3	3	2	25	25	50

Practicals Based on above mentioned Syllabus

Course Code:

IT507

Title of the Course:

Web Technologies

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	3	3	2	25	25	50

Sr. No.	Name of Experiments	Hours
1	Practicals based on Text formatting tags.	3
2	Practicals based on hyperlinks.	3
3	Practicals based on various types of listings.	3
4	Practicals based on table and its attributes.	3
5	Practicals based on form and form elements.	3
6	Practicals based on frames and frameset.	3
8	Practicals based on internal and external css.	3
9	Practicals based on basic XML program.	3
10	Practicals based on Internal and External DTD.	3
11	Practicals based on XML child/parent relationship.	3
12	Practicals based on C program on Linux Platform.	3
Total		36

Course Code:

IT508

Title of the Course: Object Oriented Programming

Course Scheme					Evaluation Scheme (Laboratory)		
Lecture	Tutorial	Practical	Periods/week	Credits	TW	POE	Total
0	0	3	3	2	25	25	50

Sr. No.	Name of Experiments	Hours
1	A simple C++ program using class and objects.	3
2	A C++ program showing use of constructor and destructor.	3
3	A C++ program using array of objects.	3
4	A C++ program demonstrating use of friend function.	3
5	A C++ program using function overloading.	3
6	A C++ program showing use of operator overloading.	3
8	A C++ program for binary operator overloading.	3
9	A C++ program for single inheritance.	3
10	A C++ program for multilevel inheritance.	3
11	A file handling in C++.	3
12	A C++ program to show exception handling in C++.	3
13.	A C++ program to show use of template.	
Total		39