



**List of New Course(s) Introduced**

**Department : Computer Science and Engineering**

**Programme Name : B.Tech.**

**Academic Year : 2018-19**

**List of New Course(s) Introduced**

Sr. No.	Course Code	Name of the Course
01.	CS8TOE02	Cloud Computing
02.	CS7TPE02	Wireless Sensor Network
03.	CS7TOE04	Digital Image Processing
04.	CS8TPE02	Introduction Of Computational Intelligence
05.	CS02TES02	Programming for Problem Solving
06.	CS02PES03	Programming for Problem Solving Lab
07.	CS7LPR02	Minor Project Lab (Practical)
08.	CS5LPR01	Mini Project in VB.NET(Practical)



**Minutes of Meetings (MoM) of Board of Studies (BoS)**

**Academic Year : 2018-19**

**School : School of Studies of Engineering and Technology**

**Department : Engineering**

**Date and Time : May 26, 2019 - 11:30 AM**

**Venue : E-Class Room**

The scheduled meeting of member of Board of Studies (BoS) of Department of Computer Science and Engineering , School of Studies of Engineering and Technology, Guru Ghasidas Vishwavidyalaya, Bilaspur was held to design and discuss the B. Tech. 2<sup>nd</sup> Year scheme and syllabi.

The following members were present in the meeting:

1. Mr. Nishant Behar(HOD, Assitant Prof., Dept. of CSE.-cum Chairman, BOS)
2. Mr. Amit Sharma (External Member)
3. Dr.Manish Shrivastava (Invited Member )
4. Dr. Sandeep Singh (Invited Member)
5. Mrs.Nishi Yadav (Member BoS, Assistant Professor, Dept. of CSE)
6. Mr. Amit Baghel (Invited Member, Assistant Professor, Dept. of CSE)
7. Mr. Satish Negi (Invited Member, Assistant Professor, Dept. of CSE)
8. Mr. Pushpendra Kumar Chandra (Invited Member, Assistant Professor, Dept. of CSE)

Following points were discussed during the meeting

1. Syllabus revision for B. Tech Final Year for the session 2018-19
2. Modification of the credit and course code of B. Tech 1st year, 2018-19
3. Implementation of CBCS in 1<sup>st</sup> 2<sup>nd</sup> and Third Year.

The committee discussed and approved the scheme and syllabi. The following courses were revised in the of B. Tech. Final year (VII and VIII Semesters) :

- ❖ Neural Network Learning And Fuzzy System (CS8TPE03)
- ❖ Artificial Intelligence (CS7TPC02)

The following new courses were introduced in the of B. Tech.

- ❖ Cloud Computing (CS8TOE02)
- ❖ Wireless Sensor Network(CS8TPE02)
- ❖ Digital Image Processing(CS8TOE04)
- ❖ Introduction Of Computational Intelligence(CS8TPE02)
- ❖ Programming for Problem Solving(CS02TES02)
- ❖ Programming for Problem Solving Lab(CS02PES03)
- ❖ Minor Project Lab (Practical)( CS7LPR02)
- ❖ Mini Project in VB.NET(Practical)(CS5LPR01)

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विभागाध्यक्ष  
Head  
संगणक विज्ञान एवं अभियांत्रिकी  
Computer Science & Engg  
अभियांत्रिकी एवं प्रौ. अध्ययन कक्षा  
SOS, Engg. & Technology  
गुरु घा. विश्वविद्यालय, बिलासपुर (छ.ग.)  
G.G.Vishwavidyalaya, Bilaspur (C.G.)

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## Scheme and Syllabus

SCHEME OF EXAMINATION										
B.TECH (FOUR YEARS) DEGREE COURSE										
FIRST YEAR, COMPUTER SCIENCE AND ENGINEERING										
SEMESTER II (COURSE-B)										
EFFECTIVE FROM SESSION 2018-19										
SL. NO.	SUBJECT CODE	SUBJECTS	PERIODS/WEEK			EVALUATION SCHEME			CREDITS	
			L	T	P	IA	ESE	TOTAL		
<b>THEORY</b>										
1	CS 02TBS03	MATHEMATICS-II	3	1	0	30	70	100	4	
2	CS 02TBS04	CHEMISTRY	3	1	0	30	70	100	4	
3	CS 02TES02	PROGRAMMING FOR PROBLEM SOLVING	3	0	0	30	70	100	3	
4	CS 02THS03	HUMANITIES-I	3	1	0	30	70	100	4	
<b>PRACTICAL</b>										
1	CS02PBS02	CHEMISTRY LAB	0	0	3	30	20	50	1.5	
2	CS02PES03	PROGRAMMING FOR PROBLEM SOLVING LAB	0	0	3	30	20	50	1.5	
3	CS02PES04	WORKSHOP & MANUFACTURING PRACTICES	1	0	3	30	20	50	2.5	
									TOTAL	20.5
IA - INTERNAL ASSESSMENT TUTORIAL ESE - END SEMESTER EXAM. P-PRACTICAL L-LECTURE T-										

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Semester- V									
S N	Subject Code	Subjects	Period /week			Evaluation Scheme			Total Credit
			L <sup>1</sup>	T <sup>2</sup>	P <sup>3</sup>	IA	ESE	TOTAL	
1	CS5TPC01	RDBMS	3	1	0	40	60	100	4
2	CS5TPC02	Foundation of Computer Science	3	1	0	40	60	100	4
3	CS5TPEXX	PE Choice-I Vth Semester	3	1	0	40	60	100	4
4	CS5TPEXX	PE Choice-II Vth Semester	3	1	0	40	60	100	4
5	CS5TOEXX	OE-I Vth Semester	3	0	0	40	60	100	3
PRACTICAL									
1	CS5LPC01	RDBMS Lab	0	0	3	30	20	50	2
2	CS5LPC02	Advance Programming Lab	0	0	3	30	20	50	2
3	CS5LPR01	Mini Project Lab-I in VB.NET	0	0	3	30	20	50	2
Total Credits								650	25

IA- Internal Assessment, ESE – End Semester Examination

Open Elective Subjects Vth Semester				Professional Elective Subject Vth Semester			Credit
SN	Subject Code	Subject	Credit	SN	Subject Code	Subject	
1	CS5TOE01	Management Information System	3	1	CS5TPE01	VB.NET	4
2	CS5TOE02	Embedded System	3	2	CS5TPE02	Parallel Computing	4
3	CS5TOE03	Principle of Management	3	3	CS5TPE03	Grid Computing	4
4	CS5TOE04	Computer Oriented Numerical Methods	3	4	CS5TPE04	Mobile Communication	4

Semester- VI									
SN	Subject Code	Subjects	Period /week			Evaluation Scheme			Total Credit
			L <sup>1</sup>	T <sup>2</sup>	P <sup>3</sup>	IA	ESE	TOTAL	
1	CS6TPC01	Operating System	3	1	0	40	60	100	4
2	CS6TPC02	Design and Analysis of Algorithm	3	1	0	40	60	100	4
3	CS6TPEXX	PE Choice-I VI th Semester	3	1	0	40	60	100	4
4	CS6TPEXX	PE Choice-II VIth Semester	3	1	0	40	60	100	4
5	CS6TOEXX	OE-I VIth Semester	3	0	0	40	60	100	3
PRACTICAL									
1	CS6LPC01	Operating System Lab	0	0	3	30	20	50	2
2	CS6LPC02	Design and Analysis of Algorithm Lab	0	0	3	30	20	50	2
3	CS6LPR01	Mini Project Lab	0	0	3	30	20	50	2
Total Credits								650	25

Open Elective Subjects VI th Semester				Professional Elective Subject VI th Semester			Credit
SN	Subject Code	Subject	Credit	SN	Subject Code	Subject	
1	CS6TOE01	Computer Graphics	3	1	CS6TPE01	Microprocessor and Interfaces	4
2	CS6TOE02	Robotics	3	2	CS6TPE02	Software Engineering	4
3	CS6TOE03	Operation Research	3	3	CS6TPE03	UNIX Operating System	4
4	CS6TOE04	Geo-Informatics and GIS Application	3	4	CS6TPE04	Multimedia System Design	4

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Sem- VII										
S No	Subject Code	Subjects	Period /week			Evaluation Scheme			Total Credit	
			L <sup>1</sup>	T <sup>2</sup>	P <sup>3</sup>	IA	ESE	TOTAL		
1	CS7TPC01	Compiler Design	3	1	0	40	60	100	4	
2	CS7IPC02	Artificial Intelligence	3	1	0	40	60	100	4	
3	CS7TPEXX	PE Choice -I VIIth Semester	3	1	0	40	60	100	4	
4	CS7TPEXX	PE Choice -II VIIth Semester	3	1	0	40	60	100	4	
5	CS7TOEXX	OE-I VII th Semester	3	0	0	40	60	100	3	
PRACTICAL										
1	CS7LPC01	Compiler Design Lab	0	0	3	30	20	50	2	
2	CS7LPC02	Artificial Intelligence Lab	0	0	3	30	20	50	2	
3	CS7LPR01	Seminar	0	0	3	30	20	50	2	
4	CS7LPR02	Minor Project Lab	0	0	3	30	20	50	2	
						Total Credits	700	27		
IA- Internal Assessment , ESE – End Semester Examination										
Open Elective Subjects VIIth Semester				Professional Elective Subject VII th Semester						
S N	Subject Code	Subject	Credit	S N	Subject Code	Subject				Credit
1	CS7TOE01	Web Technologies	3	1	CS7TPE01	Data Mining				4
2	CS7TOE02	Information Theory and Coding	3	2	CS7TPE02	Wireless Sensor Network				4
3	CS7TOE03	Swarm Intelligence, Co-evolution and Rough Sets	3	3	CS7TPE03	Intrusion Detection System				4
4	CS7TOE04	Digital Image Processing	3	4	CS7TPE04	Cyber Crime and Security				4
Sem- VIII										
S. N o.	Subject Code	Subjects	Period /week			Evaluation Scheme			Total Credit	
			L <sup>1</sup>	T <sup>2</sup>	P <sup>3</sup>	IA	ESE	TOTAL		
1	CS8TPC01	Network Security	3	1	0	40	60	100	4	
2	CS8TPEXX	PE-I VIIIth Semester	3	1	0	40	60	100	4	
3	CS8TOEXX	OE-I VIIIth Semester	3	1	0	40	60	100	4	
PRACTICAL										
1	CS8LPR01	Major Project	0	0	20	150	100	250	10	
2	CS8LPC01	Network Security Lab	0	0	3	30	20	50	2	
						Total Credits	600	24		
Open Elective Subjects VIII Semester				Professional Elective Subject VIII Semester						
S N	Subject Code	Subject	Credit	S N	Subject Code	Subject				Credit
1	CS8TOE01	Enterprise Resource Management	4	1	CS8TPE01	Soft Computing				4
2	CS8TOE02	Cloud Computing	4	2	CS8TPE02	Introduction to Computational Intelligence				4
3	CS8TOE03	Internet of Things	4	3	CS8TPE03	Neural Network Learning and Fuzzy Systems				4
4	CS8TOE04	Distributed Computing	4	4	CS8TPE04	TCP-IP				4





Department of Computer Science & Engineering, IT, GGV, Bilaspur (Chhattisgarh) India

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Class: Bachelor of Technology Eighth Semester Computer Science and Engineering  
Subject Name: Cloud Computing  
Subject Code: CS8TOE02

**UNIT-I [Introduction]**

Introduction to Cloud Computing, Evolution of Cloud, Cloud Computing Characteristics, Benefits and Challenges of Cloud Computing, Emergence of Cloud Computing, Cloud Based Service Offerings, Cloud Computing Application.

**UNIT-II [Cloud Models]**

Introduction to Cloud Models, Cloud Models: Public Cloud, Private Cloud, Hybrid Cloud, Community Cloud.

**UNIT-III [Standard & Security]**

Introduction to Cloud Standards, Cloud Security Challenges, Cloud Data Security, Network Security, Host Security, Database Management.

**UNIT-IV [Cloud Services]**

Introduction to Service, Infrastructure as a Service (IaaS), Platform as a Service (PaaS), Software as a Service (SaaS), Storage as a Service (StaaS), Database as a Service (DaaS), Process as a Service (PaaS), Security as a Service (SecaaS), Different Security issues of Cloud Computing.

**UNIT-V [Virtualization]**

Introduction, Virtualization Architecture, Types of Virtualization, Pros and Cons of Virtualization, Virtual Machine, Types of Virtual Machine.

**Text Book:**

1. Rajkumar Byyya, James Broberg, Andrzej M. Goscinski, *Cloud Computing: Principles and Paradigms*, Wiley.
2. M.N. Rao, *Cloud Computing*, PHI.
3. Toby Vette, Anthony Vot and Robert Elsenpeter, *Cloud Computing: A Practical Approach*, McGraw Hill.

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Department of Computer Science & Engineering, IT, GGV, Bilaspur (Chhattisgarh) India

Class: Bachelor of Technology Seventh Semester Computer Science and Engineering  
Subject Name: **Wireless Sensor Network**  
Subject Code: **CS7TPE02**

**UNIT- I**

Wireless Sensor Network: Introduction, Architecture, Hardware and Software used in Wireless Sensor Network.

**UNIT- II**

Sensor network application: Motion monitoring, Environmental monitoring, Generic Architecture, Sensor network Evolution.

**UNIT- III**

Wireless Sensor Network : Design , Goals and Issues , Sensor deployment, Scheduling and coverage issues, self-configuration and topology control, Querying, data collection and processing, Collaborative information processing and group connectivity.

**UNIT- IV**

Wireless Sensor Routing Protocols: Data Centric, Hierarchical, Location based, Energy efficient routing

**UNIT- V**

Sensor Network Challenges- Miniaturization, power management, scalability, remote management, usability, standardization and security, System Challenges- Tiny OS, Network Sensor Platforms.

**Books & References:-**

1. Robert Faludi Binding , *Building Wireless Sensor Networks* , Paperback Publisher: O'reilly.
2. Zhao Feng, Guibas Leonidas, *Wireless Sensor Networks*, Binding: Paperback Publisher: Elsevier India.
3. C. S Raghavendra, Krishna M. Sivalingam, Taieb Znati , *Wireless Sensor Networks*, Binding: Paperback Publisher: Springer/bsp Books.





Department of Computer Science & Engineering, IT, GGV, Bilaspur (Chhattisgarh) India

Class: Bachelor of Technology Seventh Semester Computer Science and Engineering

Subject Name: Digital Image Processing

Subject Code: CS7TOE04

#### UNIT- I

Introduction to Image Processing: Overview, Digital Image Representation, Types of Image, Image Processing steps, Application. Digital Imaging Systems: Overview, Physical Aspects of Image acquisition, sampling, Quantization, Image storage and formats.

#### UNIT-II

Digital Image Transform: Types of Image transform, Basis for transform, Fourier transform, Discrete Cosine transform, sine transform, Walsh transform, Hadamard transform, Haar transform, Slant transform.

#### UNIT-III

Image Enhancement : Need for Image Enhancement, Image Enhancement operation, Image Enhancement in Spatial Domain, Histogram based Techniques, Spatial Filtering concept, Image smoothing and sharpening in spatial Domain and Frequency Domain.

#### UNIT-IV

Image Restoration: Introduction to Degradation, types of Image Degradation, Noise Modeling, Image Restoration in presence of Noise: Mean filters, Geometric mean filter, Median filter, Maximum and Minimum filter, Midpoint filter, Band pass filter. Image Restoration Technique: Unconstrained method and constrained method.

#### UNIT-V

Image Compression: fundamental of Image compression, Compression Algorithm and its types, lossless compression algorithm and lossy compression algorithm.

#### References Books:

1. Gonzalez and Woods, *Digital Image Processing*, Pearson Education.
2. S.Sridhar, *Digital Image Processing*, Oxford University Press.
3. Jayaraman, Esakkirajan and Veerakumar, *Digital Image Processing*, TMH.
4. Anil Jain, *Fundamentals of Digital Image Processing*, PHI Learning.
5. Sonka, Hlavac and Boyle, *Digital Image Processing and Computer Vision*, Cengage Learning.

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**गुरु घासीदास विश्वविद्यालय**  
(केन्द्रीय विश्वविद्यालय अधिनियम 2009 क्र. 25 के अंतर्गत स्थापित केन्द्रीय विश्वविद्यालय)  
**कोनी, बिलासपुर - 495009 (छ.ग.)**



**Guru Ghasidas Vishwavidyalaya**  
(A Central University Established by the Central Universities Act 2009 No. 25 of 2009)  
**Koni, Bilaspur - 495009 (C.G.)**



Department of Computer Science & Engineering, IT, GGV, Bilaspur (Chhattisgarh) India

Class: Bachelor of Technology Eighth Semester Computer Science and Engineering  
Subject Name: Introduction to Computational Intelligence  
Subject Code: CS8TPE02

**UNIT-I [Introduction to Computational Intelligence]**

Computational Intelligence Paradigm [ANN, Evolutionary Computing, Swarm Intelligence, Fuzzy Systems].

**Unit-II [Artificial Neural Network]**

The Artificial Neuron [Calculating the Net Input Signal, Activation Functions, Artificial Neuron Geometry], Artificial Neuron Learning [Augmented Vectors, Gradient Descent Learning Rule, Widrow-Hoff Learning Rule, Generalized Delta Learning Rule, Error-Correction Learning Rule].

**Unit-III [Introduction to Evolutionary Computing]**

Representation of Solution-The Chromosome, Fitness function, Initial Population, Selection Operators [Random Selection, Proportional Selection, Tournament Selection, Rank-Based Selection, Elitism, Reproduction Operators, General Evolutionary Algorithms.

**Unit-IV [Genetic Algorithms]**

Random Search, General Genetic Algorithm, Chromosome Representation, Cross-Over, Mutation, Island Genetic Algorithm, Routing Optimization Application.

**Unit-V [Genetic Programming]**

Chromosome Representation, Initial Population, Fitness Function, Cross-Over Operator, Mutation Operators, Building-Block Approach to Genetic Programming.

**Recommended Books**

**Text Book:**

1. S. Haykin, *Neural Networks : A Comprehensive Foundation*, Second Edition, Prentice Hall International, 1999.

**Other Reference:**

1. B. Yegnanarayana, *Artificial Neural Networks*, Nineteenth Printing, PHI Learning Private Limited, 2012.
2. G.J. Klir and B. Yuan, *Fuzzy Sets and Fuzzy Logic : Theory and Applications*, Third Edition, PHI, 2000.

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SUBJECT CODE/NAME	L	T	P	Credit
CS02PES03/PROGRAMMING FOR PROBLEM SOLVING LAB	0	0	3	1.5

[The laboratory should be preceded or followed by a tutorial to explain the approach or algorithm to be implemented for the problem given.]

**Tutorial 1:** Problem solving using computers:

**Lab 1:** Familiarization with programming environment

**Tutorial 2:** Variable types and type conversions:

**Lab 2:** Simple computational problems using arithmetic expressions

**Tutorial 3:** Branching and logical expressions:

**Lab 3:** Problems involving if-then-else structures

**Tutorial 4:** Loops, while and for loops:

**Lab 4:** Iterative problems e.g., sum of series

**Tutorial 5:** 1D Arrays: searching, sorting:

**Lab 5:** 1D Array manipulation

**Tutorial 6:** 2D arrays and Strings

**Lab 6:** Matrix problems, String operations

**Tutorial 7:** Functions, call by value:

**Lab 7:** Simple functions

**Tutorial 8 & 9:** Numerical methods (Root finding, numerical differentiation, numerical integration):

**Lab 8 and 9:** Programming for solving Numerical methods problems

**Tutorial 10:** Recursion, structure of recursive calls

**Lab 10:** Recursive functions

**Tutorial 11:** Pointers, structures and dynamic memory allocation

**Lab 11:** Pointers and structures

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Subject code/NAME	L	T	P	Credit
CS02TES02/PROGRAMMING FOR PROBLEM SOLVING	3	0	0	3

#### Unit 1

##### Introduction to Programming (3 lectures)

Introduction to components of a computer system (disks, memory, processor, where a program is stored and executed, operating system, compilers etc.) -

**Idea of Algorithm (3 lectures ):** steps to solve logical and numerical problems. Representation of Algorithm: Flowchart/Pseudo code with examples.

From algorithms to programs; source code, variables (with data types) variables and memory locations, Syntax and Logical Errors in compilation, object and executable code.

#### Unit 2

##### Arithmetic expressions and precedence (12 lectures)

Conditional Branching and Loops

Writing and evaluation of conditionals and consequent branching

Iteration and loops

**Arrays (6 lectures)** Arrays (1-D, 2-D), Character arrays and strings

#### Unit 3

##### Basic Algorithms (6 lectures)

Searching ,concept of binary search etc , Basic Sorting Algorithms Bubble sort etc, Finding roots of equations, introduction of Algorithm complexity

#### Unit 4

##### Function (5 lectures)

Functions (including using built in libraries), Parameter passing in functions, call by value.

Passing arrays to functions: idea of call by reference binary search etc

**Recursion functions (5 lectures)** Recursion, as a different way of solving problems. Example programs, such as Finding Factorial, Fibonacci series, etc.

#### Unit 5

##### Structure (4 lectures)

Structures, Defining structures and Array of Structures

**Pointers (3 lectures)** Idea of pointers, Defining pointers, Use of Pointers in self-referential structures, notion of linked list (no implementation)

#### Suggested Text Books

- Byron Gottfried, Schaum's Outline of Programming with C, McGraw-Hill
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw-Hill

#### Suggested Reference Books

- Brian W. Kernighan and Dennis M. Ritchie, The C Programming Language, Prentice Hall of India

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