



Department of Computer Science and Engineering

Date: 09.04.16

Minutes of the meeting of Board of Studies in Computer Science and Engineering held at 10:00 am on 09.04.2016 in Conference Hall - I of VFSTR Guest house.

BOS Members Present:

- | | | |
|-----|---|-------------------|
| 1. | Dr. N. Gnaneswara Rao,
Head Department of Computer Science and Engineering, VFSTRU | Chairman |
| 2. | Dr.N.P.Gopalan,
Professor, Department of Computer Applications, National Institute of Technology Trichy | Member |
| 3. | Dr. K. Ramesh,
Professor, Department of Computer Science and Engineering, National Institute of Technology, Warangal | Member |
| 4. | Mr. Chandranadh Batla,
Vice President,CTS, Chennai. | Member |
| 5. | Dr. Krishna NagaRajan,
CEO, CouthIT, Hyderabad | Member |
| 6. | Mrs. S. Lalitha,
Sr. Consultant, Digital head Insurance Products TCS, Bangalore | Member |
| 7. | Dr. Venkatesulu Dondeti, Professor
Department of Computer Science and Engineering, VFSTRU | Ex-officio Member |
| 8. | Prof. K.VKrishna Kishore,
Department of Computer Science and Engineering, VFSTRU | Ex-officio Member |
| 9. | Dr. K.Hemantha Kumar, Associate Professor
Department of Computer Science and Engineering, VFSTRU | Member |
| 10. | Dr. T. Maruthi Padmaja, Associate Professor
Department of Computer Science and Engineering, VFSTRU | Member |
| 11. | Dr. A. Rama Swamy Reddy, Associate Professor
Department of Computer Science and Engineering, VFSTRU | Member |
| 12. | Mr. S. V. Rama Krishna, Assistant Professor
Department of Computer Science and Engineering, VFSTRU | Member |
| 13. | Mr. S.Deva Kumar, Assistant Professor
Department of Computer Science and Engineering, VFSTRU | Member |

Minutes of meeting:

Chairman BoS, CSE has notified the members that they are following Choice based credit system in the implementation of the Curriculum for B. Tech CSE Programmes. In this juncture, feedback from various stakeholders include Employers, Alumni, Students, Faculty and Parents is carefully considered and analysed. Based on their suggestions the draft R 16 curriculum is designed and initiated the discussion by welcoming all internal and external BoS members to the meeting. List of new courses and percentage of revision in each course is included as Annexure I. He also mentioned that there is a 40% of content revision was observed when compared with R 13. All the Courses in the Curriculum are designed to fall under either of the domains of employability or entrepreneurship or skill development. Course-wise categorization is attached as Appendix II.

1. Mr. Chandranadh Batla advised that "Industry looks for a people who are expertise in specific domain but not with a surface level knowledge on all the domains."
Dr. N.Gnaneswara Rao replied that "our streams in the proposed curriculum will address the same by offering conceptual understanding in detail."
2. Dr. Krishna Nagarajan & Mr. Chandranadh Batla suggested that "level of decision to making may not be sufficient at the age of 18 years in choosing streams. So proper counseling need to be given to the students at the end of II year I semester in choosing streams."
Prof. K.V Krishna Kishore replied that "enough counseling will be given for the II year students in choosing the streams. counselors and faculty advisors of the respective sections will motivate the students"
3. Mr. Chandranadh Batla told that "Basics of computers lab should have an experiment on 'assembling and disassembling the computer system' will expose the students towards demonstration based learning. "
Dr. Venkatesulu Dondeti accepted the suggestion and he said that it would be very helpful for the I year students.
4. Dr.Krishna Nagarajan told that "Regarding certification programs, if certification is not given by IEEE, USA then we should not claim such certification as IEEE"
Chairman, BOS accepted the correction and said that probable agency will be identified.
5. Dr.N.P.Gopalan advised that "operations on file concept in DBMS course has to be removed to avoid redundancy. He also suggested that text book by Korth is a best

alternative for the text book by Raghu Ramkrishna. Korth text book gives much practical exposure.

Dr. Ramaswamy Reddy also said that the correction needs to be incorporated to empower the student technical knowledge in the database domain.

6. Dr. N.P. Gopalan advised that 'the term ADT has to be removed where ever it is there in entire course and it is preferred to include foreign author's textbooks in syllabi.'. Dr. N.P.Gopalan suggested to keep Cormen as a prescribed text book for the Design Analysis and Algorithms course.

Dr. Venkatesulu Dondeti replied that ADT is an important concept in the Data Structures.

7. Mr. Chandranadh Batla advised that "Course on Mobile Technologies (Android) should be there as an open elective to grab the internship opportunities."

Prof. K V Krishna Kishore replied that Internship is one of salient feature of the University, and to create practical exposure and to transform the student as industry ready these type of the revisions need to be incorporated and he accepted the revision.

8. Dr. Krishna Nagarajan told that Object Oriented Software Engineering Concepts need to be included in Software Engineering course. This inclusion should create a exposure to design UML diagrams for the students.

Mr.S.V.Rama Krishna said that in the absence of OOAD course, this is a welcome revision. To facilitate forward and reverse engineering concepts this is a necessary correction.

9. Mrs. S.Sri Lalitha told that 'responsive web design' as a part of fifth unit of Web Technologies course. This 'responsive web design' topic is widely used in different frameworks.

Mr.S.Deva Kumar said that in HTML5 and CSS3.O the responsive web design frame work plays a vital role. So he accepted the inclusion of the concept.

10. Mrs. S.Sri Lalitha recommended that "basics of distributed Operating System concepts should be included in vth Unit of Operating Systems, 'Distributed operating systems' by TanenBaum is the prescribed book for that unit".

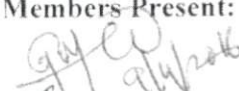


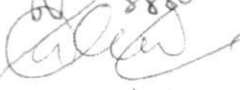




Dr.K.Hemantha Kumar told that JNTU and all other universities are keeping Distributed Operating System concepts in 8th unit but in our syllabus we have only 5 units. To accommodate GATE syllabus, it is not possible to keep DOS.

11. Dr. Krishna Nagarajan told that "As all smart phones are loaded with ARM processors, ARM Processors is the suggested course in place of MPI and Raspberry Pi is the recommended software for lab course."
Prof. K V Krishna Kishore said that revision may be incorporated only with sufficient training to the faculty but basics of multi processors is enriched with MPI course, In the discussions ARM processors course is kept in elective stream.
12. Dr. N.P.Gopalan told that "Matt Bishop is the better book for the course IS"
Dr. K.Hemantha Kumar obliged the request and it will be incorporated.
13. Mrs. S.Sri Lalitha advised that "Mobile Computing course title has to be changed as 'Mobile Communications' as the contents are purely related to communications."
Dr.T. Maruthi Padmaja accepted the revision based on the recommendations given by the committee.
14. Mrs. S.Sri Lalitha told that "In the course MWT, document upload and download has to be included".
Mr. S.Deva Kumar said that as a skill component this revision is accepted and that topic will be included as an experiment.
15. Mrs. S.Sri Lalitha recommended that "As many students are transforming their career as software engineers, courses like SPM & STM should be included as individual courses in open electives."
Chairman, BOS recommended that the revision will be incorporated in future.
16. All the external members expressed that 'No. of streams have to be reduced to 3 instead of 6 for the sake of operational convenience.'
To provide multiple career opportunities and to serve the needs of different students
Dr. N .Gnaneswara Rao said that we would like to take the challenge.
17. Mrs. S.Sri Lalitha advised that "MS office and IT Security should be covered in curriculum where they fit"
Mr.S.V.Rama Krishna said that already these corrections are incorporated in the Fundamentals of Computer Science course.
18. Mr. Chandranadh Batla suggested that "Virtual learning through virtual labs should be there as a part of curriculum". Virtual labs like ICT facilities reduces the infrastructural burden on the management. It also opens a door for 24 x 7 learning to the student community.

19. Committee considered the scheme of instructions, detailed syllabi, and text and reference books pertaining to B.Tech Programme in Computer Science and Engineering

Resolved to recommend and revise the scheme of instructions, detailed syllabi, and text and reference books pertaining to B.Tech Programme in Computer Science and Engineering to come into effect from the academic year 2016- 17 shown in Annexure - I.

Signature of Members Present:

- | | |
|---|---|
| 1.  | 2.  |
| 3.  | 4.  |
| 5. N. Sridharan | 6. S.V.B. Srilakshmi |
| 7. D. Venkatesh | 8.  |
| 9. K. H. G. | 10.  |
| 11.  | 12. S.V.B. Srilakshmi |
| 13.  | |

Copy to

1. Dean, Academics.
2. All BOS Members.
3. File.



Department of Computer Science and Engineering
R-16 Curriculum

I Year I Semester

Course Title	L	T	P	C
Engineering Mathematics-I	3	1	2	5
Engineering Physics	3	-	-	3
Technical English Communication	3	-	2	4
Basics of Computers and Internet	3	-	2	4
Computer Programming	3	1	2	5
Basics of Engineering Products	3	-	2	4
English Proficiency and Communication Skills	-	-	2	1
Engineering Physics Laboratory	-	-	3	2
Total	18	2	15	28

I Year II Semester

Course Title	L	T	P	C
Engineering Mathematics-II	3	1	2	5
Engineering Chemistry	3	-	-	3
Engineering Graphics	1	-	3	3
Basics of Electrical and Electronics Engineering	3	-	2	4
Engineering Chemistry Laboratory	-	-	3	2
Environmental Science and Technology	2	-	-	2
Electronic Devices and Circuits	3	-	2	4
Work shop Practice	-	-	3	2
Total	15	1	15	25

II Year I Semester

Course Title	L	T	P	C
Probability and Statistics	4	-	-	4
Management Science	3	-	-	3
Database Management Systems	3	1	2	5
Data Structures	3	-	2	4
Digital Logic Design	3	1	-	4
Discrete Mathematical Structures	3	-	-	3
Soft Skills Laboratory	-	-	2	1
Employability and Life Skills Elective*	-	-	-	1

Total	19	2	6	25
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II Year II Semester

Course Title	L	T	P	C
Computer Organization and Architecture	3	1	-	4
Design and Analysis of Algorithms	3	-	2	4
Formal Languages and Automata Theory	3	1	-	4
Object Oriented Programming using JAVA	3	-	2	4
Professional Communications Laboratory	-	-	2	1
Department Elective	-	-	-	3-4
Department / Open Elective	-	-	-	3-4
Employability and Life Skills Elective*	-	-	-	1
Total	12	2	6	24-26

III Year I Semester

Course Title	L	T	P	C
Professional Ethics	2	-	-	2
Software Engineering	3	-	2	4
Web Technologies	3	1	2	5
Compiler Design	3	-	-	3
Operating Systems	3	-	2	4
Department Elective	-	-	-	3-4
Department / Open Elective	-	-	-	3-4
Employability and Life Skills Elective*	-	-	-	1
Total	14	1	6	25-27

III Year II Semester

Course Title	L	T	P	C
Data Mining Techniques	3	-	2	4
Computer Networks	3	-	2	4
Microprocessors and Interfacing	3	-	-	3
Operations Research for Computer Science Engineers	3	1	-	4
Department Elective	-	-	-	3-4
Open Elective	-	-	-	3-4
Employability and Life Skills Elective*	-	-	-	1
Total	12	1	4	22-24

IV Year I Semester

Course Title	L	T	P	C
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Search Engines	3	-	-	3
Embedded Systems	3	-	2	4
Information Security	3	-	2	4
Mobile Communications	3	-	2	4
Department Elective	-	-	-	3-4
Open Elective	-	-	-	3-4
Employability and Life Skills Elective*	-	-	-	1
Total	12	-	6	22-24

IV Year II Semester

Course Title	L	T	P	C
Project work/ Internship	-	-	30	15
Total	-	-	30	15

STREAM - 1: ADVANCED NETWORKS

Course Title	L	T	P	C
DATA COMMUNICATIONS	3	-	-	3
MOBILE TECHNOLOGIES	3	-	2	4
NETWORK PROGRAMMING	3	-	2	4
MOBILE AD HOC NETWORKS	3	-	2	4

STREAM - 2: COMPUTER VISION

Course Title	L	T	P	C
COMPUTER GRAPHICS	3	-	2	4
FUNDAMENTALS OF IMAGE PROCESSING	3	-	2	4
ARTIFICIAL INTELLIGENCE	3	-	-	3
PATTERN RECOGNITION	3	-	2	4

STREAM - 3: TECHNOLOGIES FOR BUSINESS APPLICATIONS

Course Title	L	T	P	C
SCRIPTING LANGUAGES	3	-	2	4
OPEN SYSTEMS FOR WEB TECHNOLOGIES	3	-	2	4
MIDDLEWARE TECHNOLOGIES	3	-	2	4
EMERGING TECHNOLOGIES	3	-	2	4

STREAM - 4: EMBEDDED COMPUTING

Course Title	L	T	P	C
ADVANCED MICROCONTROLLERS	3	-	2	4
REAL TIME OPERATING SYSTEMS	3	-	-	3

EMBEDDED C	3	-	2	4
INTERNET OF THINGS	3	1	-	4

STREAM - 5: SOFT COMPUTING

Course Title	L	T	P	C
FUZZY SET THEORY AND LOGIC	3	1	-	4
ARTIFICIAL INTELLIGENCE	3	-	-	3
ARTIFICIAL NEURAL NETWORKS	3	-	2	4
OPTIMIZATION TECHNIQUES	3	1	-	4

STREAM - 6: DATA SCIENCE

Course Title	L	T	P	C
ADVANCED DATABASES	3	1	-	4
DISTRIBUTED SYSTEMS	3	-	-	3
CLOUD COMPUTING	3	-	2	4
BIG DATA ANALYTICS	3	-	2	4

MODULAR COURSES

Course Title	L	T	P	C
LAMP - Linux,Apache,MySQL,PHP	2	-	-	2
OCJP - Oracle Certified Java Programmer	2	-	-	2

Open Elective COURSES

Course Title	L	T	P	C
Linux\Unix & Shell programming	4	0	0	4
R Programming	4	0	0	4
Statistics using python	4	0	0	4
Data Science Using Python	4	0	0	4
Fundamentals of Database Systems	4	0	0	4
Fundamentals of Data Mining Techniques	4	0	0	4
Introduction to Big Data Analytics	4	0	0	4
JAVA Programming	4	0	0	4
Internet Technologies	4	0	0	4
Python Programming	4	0	0	4
Big Data Analytics	4	0	0	4

*List of all highlighted Courses fall under the criteria of Choice Based Credit System


Chairman, BOS



Department of Computer Science and Engineering
R-16 Curriculum

List of New Courses

- ✓ Engineering Mathematics
- ✓ Engineering Physics
- ✓ Technical English Communication
- ✓ Basics of Computers and Internet
- ✓ Computer Programming
- ✓ Basics of Engineering Products
- ✓ English Proficiency and Communication Skills
- ✓ Engineering Physics Laboratory
- ✓ Engineering Mathematics-II
- ✓ Engineering Chemistry
- ✓ Engineering Graphics
- ✓ Basics of Electrical and Electronics Engineering
- ✓ Engineering Chemistry Laboratory
- ✓ Environmental Science and Technology
- ✓ Electronic Devices and Circuits
- ✓ Work shop Practice
- ✓ Probability and Statistics
- ✓ Management Science
- ✓ Database Management Systems
- ✓ Data Structures
- ✓ Digital Logic Design
- ✓ Discrete Mathematical Structures
- ✓ Soft Skills Laboratory
- ✓ Employability and Life Skills
- ✓ Computer Organization and Architecture
- ✓ Design and Analysis of Algorithms
- ✓ Formal Languages and Automata Theory
- ✓ Object Oriented Programming using JAVA
- ✓ Professional Communications Laboratory
- ✓ Employability and Life Skills
- ✓ Data Communications
- ✓ Computer Graphics
- ✓ Scripting Languages
- ✓ Advanced Microcontrollers
- ✓ Fuzzy Set Theory And Logic
- ✓ Advanced Databases
- ✓ Professional Ethics
- ✓ Software Engineering
- ✓ Web Technologies
- ✓ Compiler Design

- ✓ Operating Systems
- ✓ Employability and Life Skills
- ✓ Data Mining Techniques
- ✓ Computer Networks
- ✓ Microprocessors and Interfacing
- ✓ Operations Research for Computer Science Engineers
- ✓ Employability and Life Skills
- ✓ Modular Course
- ✓ Mobile Technologies
- ✓ Network Programming
- ✓ Fundamentals of Image Processing
- ✓ Open Systems for Web Technologies
- ✓ Middleware Technologies
- ✓ Real Time Operating Systems
- ✓ Embedded C
- ✓ Artificial Intelligence
- ✓ Artificial Neural Networks
- ✓ Distributed Systems
- ✓ Cloud Computing
- ✓ Search Engines
- ✓ Embedded Systems
- ✓ Information Security
- ✓ Mobile Communications
- ✓ Employability and Life Skills
- ✓ Project Work
- ✓ Internship
- ✓ Mobile Ad hoc Networks
- ✓ Pattern Recognition
- ✓ Emerging Technologies
- ✓ Internet of Things
- ✓ Optimization Techniques
- ✓ Linux\Unix & Shell programming
- ✓ R Programming
- ✓ Statistics using python
- ✓ Data Science Using Python
- ✓ Fundamentals of Database Systems
- ✓ Fundamentals of Data Mining Techniques
- ✓ Introduction to Big Data Analytics
- ✓ JAVA Programming
- ✓ Internet Technologies
- ✓ Python Programming
- ✓ Big Data Analytics


Chairman, BOS



Department of Computer Science and Engineering

R-16 Curriculum

Categorization of Course Type of Employability/ Skill Oriented/ Entrepreneurship

<i>Name of the Course</i>	<i>Course Type</i>
Engineering Mathematics	Skill Development
Engineering Physics	Skill Development
Technical English Communication	Employability
Basics of Computers and Internet	Skill Development
Computer Programming	Employability
Basics of Engineering Products	Skill Development
English Proficiency and Communication Skills	Employability
Engineering Physics Laboratory	Skill Development
Engineering Mathematics-II	Skill Development
Engineering Chemistry	Skill Development
Engineering Graphics	Skill Development
Basics of Electrical and Electronics Engineering	Skill Development
Engineering Chemistry Laboratory	Skill Development
Environmental Science and Technology	Skill Development
Electronic Devices and Circuits	Skill Development
Work shop Practice	Employability
Probability and Statistics	Skill Development
Management Science	Entrepreneurship
Database Management Systems	Employability
Data Structures	Employability
Digital Logic Design	Skill Development
Discrete Mathematical Structures	Skill Development
Soft Skills Laboratory	Employability
Employability and Life Skills	Skill Development
Computer Organization and Architecture	Skill Development
Design and Analysis of Algorithms	Employability
Formal Languages and Automata Theory	Skill Development
Object Oriented Programming using JAVA	Employability
Professional Communications Laboratory	Employability
Employability and Life Skills	Skill Development
Data Communications	Skill Development
Computer Graphics	Skill Development
Scripting Languages	Employability
Advanced Microcontrollers	Skill Development
Fuzzy Set Theory And Logic	Skill Development
Advanced Databases	Skill Development
Professional Ethics	Entrepreneurship
Software Engineering	Employability
Web Technologies	Employability

Compiler Design	Skill Development
Operating Systems	Skill Development
Employability and Life Skills	Skill Development
Data Mining Techniques	Employability
Computer Networks	Skill Development
Microprocessors and Interfacing	Skill Development
Operations Research for Computer Science Engineers	Skill Development
Employability and Life Skills	Skill Development
Modular Course	Employability
Mobile Technologies	Skill Development
Network Programming	Skill Development
Fundamentals of Image Processing	Skill Development
Open Systems for Web Technologies	Employability
Middleware Technologies	Employability
Real Time Operating Systems	Skill Development
Embedded C	Skill Development
Artificial Intelligence	Employability
Artificial Neural Networks	Skill Development
Distributed Systems	Skill Development
Cloud Computing	Employability
Search Engines	Employability
Embedded Systems	Skill Development
Information Security	Skill Development
Mobile Communications	Skill Development
Employability and Life Skills	Skill Development
Project Work	Employability
Internship	Employability
Mobile Ad hoc Networks	Skill Development
Pattern Recognition	Employability
Emerging Technologies	Employability
Internet of Things	Employability
Optimization Techniques	Skill Development
Linux\Unix & Shell programming	Skill Development
R Programming	Employability
Statistics using python	Employability
Data Science Using Python	Employability
Fundamentals of Database Systems	Employability
Fundamentals of Data Mining Techniques	Employability
Introduction to Big Data Analytics	Employability
JAVA Programming	Employability
Internet Technologies	Employability
Python Programming	Employability
Big Data Analytics	Employability


Chairman, BOS