



**Minutes of Board of Studies Meeting**

28.07.2021

Department of Computer Science & Engineering has conducted the Board of Studies (BOS) Meeting for the B.Tech Computer Science and Engineering (Artificial Intelligence and Machine Learning) on 28/07/2021 in online mode from 6:00 PM to 8.00 PM.

**Agenda of the BOS Meeting:**

1. Discussions and approval of R-21 B.Tech. CSE (AI&ML) Program Structure.
2. Discussion and approval on R-21 B.Tech. CSE (AI&ML) course contents.
3. Any other point with the permission of Chair.

**Members attended the Meeting:**

S.No.	Name	Designation & Affiliation	Details
1	Dr. Venkatesulu Dondeti	Professor & Head, Department of CSE, VFSTR Deemed to be University	BOS Chairman
2	Dr A Chandrasekar Rao	Assistant Professor, Department of CSE, IIT (ISM), Dhanbadh	External Member
3	Mr I Sai Krishna	Architect, Cargill Incorporation, Bangalore	External Member
4	Dr. K Hemantha Kumar	Professor, Department of CSE, VFSTR Deemed to be University	Internal Member
5	Dr. S V Phani Kumar	Assoc. Professor, Department of CSE, VFSTR Deemed to be University	Internal Member & Coordinator
6	Mrs. B Jyostna Devi	Asst. Professor, Department of CSE, VFSTR Deemed to be University	Internal Member
7	Dr. S Bala Krishna	Asst. Professor, Department of CSE, VFSTR Deemed to be University	Special Invitee

**Members unable to attend the meeting:**

S. No.	Name of the Member	Affiliation & Designation	Details
1	Dr Dilip	Associate Professor IIT Mandi, Himachal Pradesh	External Member
2	Dr Karthik Seshadri	Asst. Prof, CSE, NIT Tadepalligudem	External Member
3	Dr M Srinivas	Asst.Prof, CSE, NIT Warangal	External Member
4	Ms Ashika	Scientist-E, DRDO, Bangalore	External Member

**Following points were discussed in the meeting:**


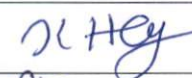
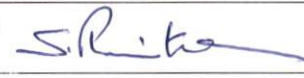
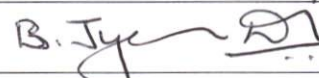

1. Dr. D Venkatesulu, HoD, CSE has invited all the external and internal members and presented the glimpses of R-21 Curriculum.

He explained the process followed in the preparation of R-21 Course Contents, CBCS has followed in this R 21 Programme Curriculum also. R 21 Course Structure is attached as Annexure I.

He also mentioned that the Curriculum is encompassing the courses that enable employability or entrepreneurship or skill development. List is included as Annexure II.

2. Dr. K Hemantha Kumar has initiated the presentation on the structure of R 21 CSE (AI&ML) Curriculum.
3. Dr A Chandrasekar Rao Suggested 'stream data analysis' to be included in Advanced Data Mining Course.
4. Dr A Chandrasekar Rao Suggested to include Evolutionary Computing in the place of Genetic Algorithms and its applications and Fuzzy Algorithms and its applications. Also informed to offer this course before "Nature Inspired Computing".
5. Dr A Chandrasekar Rao Suggested to offer Robotics: Computational Motion Planning as an open elective course offered by Mechanical Department
6. Mr I Sai Krishna and Dr A Chandrasekar Rao suggested to include more AI Courses. Based on the suggestion the following courses are included:
  - i) Knowledge Representation and Reasoning is placed as core Course
  - ii) Artificial Intelligence Search Methods for Problem Solving as an elective
  - iii) Artificial Intelligence: Constraint Satisfaction as an elective
7. Dr Karthick Seshadri given the following suggestions (through mail):
  - i) Probability and Random Variables may be changed as "Probability, Statistics and Stochastic Processes" as Stochastic processes are important in creating generative ML models,
  - ii) Technical English Communication to be reworded as "English for Technical Communication".
  - iii) OOPs through Java to be changed as "Object Oriented Programming".
  - iv) Reinforcement Learning is to be introduced as an elective.
  - v) A first-level Core course on Data Mining has to be introduced. Without studying this first-level title, how can a student comprehend Advanced Data Mining in the electives?

After the brain storming session, all the external and internal members have approved the programme structure and course contents. Dr. Venkatesulu adjourned the meeting by thanking all external and internal members of the BOS.

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7. 		

Copy to

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



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Annexure I

### R21 Course Structure

#### B.Tech. CSE - Artificial Intelligence and Machine Learning

#### I Year I Semester

Course Title	L	T	P	C
Engineering Mathematics I(C)	3	-	2	4
Engineering Physics (A)	3	-	2	4
Basics of Electrical & Electronics Engineering	3	-	2	4
Engineering Graphics and Design	1	-	2	2
<b>Python Programming</b>	3	-	2	4
Discrete Mathematical Structures	3	-	-	3
Physical fitness, Sports & Games-I	-	-	3	1
Constitution of India	1	-	-	1
Total	17	-	13	23

#### I Year II Semester

Course Title	L	T	P	C
Probability and Random Variables	3	1	-	4
Numerical Methods	3	-	-	3
Advanced Engineering Mathematics	3	-	-	3
Statistical Methods and Data Visualization	3	-	2	4
Workshop	1	-	2	2
English Proficiency and Communication Skills	-	-	2	1
Technical English Communication	2	-	2	3
Physical Fitness, Sports & Games-II	-	-	3	1
Total	15	1	11	21

## II Year I Semester

Course Title	L	T	P	C
Computer Organization & Architecture	3	-	-	3
Artificial Intelligence	3	-	2	4
OOPs through JAVA	2	-	4	4
Data Structures	3	-	2	4
Database Management Systems	3	-	2	4
Environmental Studies	1	-	-	1
Life Skills - I	-	-	2	-
Technical Seminar-I	-	-	2	1
Intra-disciplinary Projects-I	-	-	2	1
Physical Fitness, Sports & Games-III	-	-	2	1
Total	15	-	18	23

## II Year II Semester

Course Title	L	T	P	C
Design & Analysis of Algorithms	3	-	2	4
Machine Learning	3	-	2	4
Formal Languages & Automata Theory	3	-	-	3
Computer Vision	3	-	2	4
Web Technologies	2	-	2	3
Principles of Management & Organizational Behaviour	3	-	-	3
Life Skills - II	-	-	2	1
Technical Seminar-II	-	-	2	1
Intra-disciplinary Projects-II	-	-	2	1
Total	17	-	14	24

### III Year I Semester

Course Title	L	T	P	C
Operating Systems	3	-	-	3
Advanced Data Structures	3	-	2	4
Deep Learning	3	-	2	4
Computer Networks	3	-	2	4
Soft-skills Laboratory	1	-	-	1
Department Elective-I	3	-	2	4
Open Elective-I	3	-	-	3
Employability skills-I	-	-	2	-
Inter-departmental Projects-I	-	-	4	2
Modular Course	-	-	-	1
Total	19	-	14	26

### III Year II Semester

Course Title	L	T	P	C
Artificial Intelligence: Knowledge Representation and Reasoning	3	-	2	4
Natural Language Processing	3	-	2	4
Software Engineering	3	-	2	4
Competitive Coding	-	-	2	1
Professional Communication Laboratory	-	-	2	1
Human Values, Professional Ethics & Gender Equity	2	-	-	2
Department Elective-II	3	-	-	3
Open Elective-II	3	-	-	3
Employability skills-II	-	-	2	1
Inter-departmental Projects-II	-	-	4	2
Total	17	-	16	25

**IV Year I Semester**

Course Title	L	T	P	C
Big Data Analytics	3	-	-	3
Department Elective III	3	-	2	4
Department Elective IV	3	-	-	3
Open Elective III	3	-	-	3
Societal-Centric and Industry Related Projects	-	-	6	3
Total	12	-	8	16

**IV Year II Semester**

Course Title	L	T	P	C
Internship / Project work	-	-	24	12
<b>Total</b>	-	-	<b>24</b>	<b>12</b>

**DEPARTMENT ELECTIVE COURSES**

Course Title	L	T	P	C
Evolutionary Computing	3	-	2	4
Artificial Intelligence Search Methods For Problem Solving	3	-	2	4
Nature Inspired Computing Techniques	3	-	2	4
Advanced Data Mining	3	-	2	4
Internet of Things	3	-	2	4
Optimization Techniques	3	-	-	3
Cloud Computing	3	-	-	3
Cryptography and Network Security	3	-	-	3
Artificial Intelligence: Constraint Satisfaction	3	-	-	3
Evolutionary Computing	3	-	2	4
Artificial Intelligence Search Methods For Problem Solving	3	-	2	4
Reinforcement Learning	3	-	-	3



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**Department of Computer Science and Engineering**  
**R21 B.Tech CSE – Artificial Intelligence and Machine Learning**

**List of new courses**

- Statistical Methods and Data Visualization
- Computer Organization & Architecture
- Artificial Intelligence
- Machine Learning
- Computer Vision
- Advanced Data Structures
- Deep Learning
- Artificial Intelligence: Knowledge Representation and Reasoning
- Evolutionary Computing
- Artificial Intelligence Search Methods for Problem Solving
- Nature Inspired Computing Techniques
- Advanced Data Mining
- Optimization Techniques
- Artificial Intelligence: Constraint Satisfaction
- Evolutionary Computing
- Artificial Intelligence Search Methods For Problem Solving
- Reinforcement Learning
- Natural Language Processing

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**Department of Computer Science and Engineering**  
**R21 B.Tech CSE – Cyber Security**  
**Course Categorization**

Course Title	Course Category
Engineering Mathematics I(C)	Skill Development
Engineering Physics (A)	Skill Development
Basics of Electrical & Electronics Engineering	Skill Development
Engineering Graphics and Design	Skill Development
<b>Python Programming</b>	Employability
Discrete Mathematical Structures	Skill Development
Physical fitness, Sports & Games-I	Skill Development
Constitution of India	Skill Development
Probability and Random Variables	Skill Development
Numerical Methods	Skill Development
Advanced Engineering Mathematics	Skill Development
Statistical Methods and Data Visualization	Skill Development
Workshop	Skill Development
English Proficiency and Communication Skills	Skill Development
Technical English Communication	Skill Development
Physical Fitness, Sports & Games-II	Skill Development
Computer Organization & Architecture	Skill Development
Artificial Intelligence	Skill Development
OOPs through JAVA	Skill Development
Data Structures	Employability
Database Management Systems	Employability
Environmental Studies	Skill Development
Life Skills – I	Skill Development
Technical Seminar-I	Skill Development
Intra-disciplinary Projects-I	Skill Development
Physical Fitness, Sports & Games-III	Skill Development



Design & Analysis of Algorithms	Employability
Machine Learning	Skill Development
Formal Languages & Automata Theory	Skill Development
Computer Vision	Skill Development
Web Technologies	Employability
Principles of Management & Organizational Behaviour	Entrepreneurship
Life Skills – II	Skill Development
Technical Seminar-II	Skill Development
Intra-disciplinary Projects-II	Skill Development
Operating Systems	Skill Development
Advanced Data Structures	Employability
Deep Learning	Skill Development
Computer Networks	Skill Development
Soft-skills Laboratory	Skill Development
Employability skills-I	Employability
Inter-departmental Projects-I	Employability
Modular Course	Employability
Artificial Intelligence: Knowledge Representation and Reasoning	Skill Development
Natural Language Processing	Skill Development
Software Engineering	Skill Development
Competitive Coding	Employability
Professional Communication Laboratory	Skill Development
Human Values, Professional Ethics & Gender Equity	Skill Development
Employability skills-II	Employability
Inter-departmental Projects-II	Employability
Big Data Analytics	Skill Development
Societal-Centric and Industry Related Projects	Skill Development
Internship / Project work	Employability
Evolutionary Computing	Skill Development
Artificial Intelligence Search Methods For Problem Solving	Skill Development

Nature Inspired Computing Techniques	Skill Development
Advanced Data Mining	Skill Development
Internet of Things	Skill Development
Optimization Techniques	Skill Development
Cloud Computing	Skill Development
Cryptography and Network Security	Skill Development
Artificial Intelligence: Constraint Satisfaction	Skill Development
Evolutionary Computing	Skill Development
Artificial Intelligence Search Methods For Problem Solving	Skill Development
Reinforcement Learning	Skill Development



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