



Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY, BENGALURU-56

(An Autonomous Institution, Affiliated to VTU, Belagavi, Approved by AICTE, New Delhi)

DEPARTMENT OF MASTER OF COMPUTER APPLICATIONS(MCA)

The following documents enclosed are verified and approved.

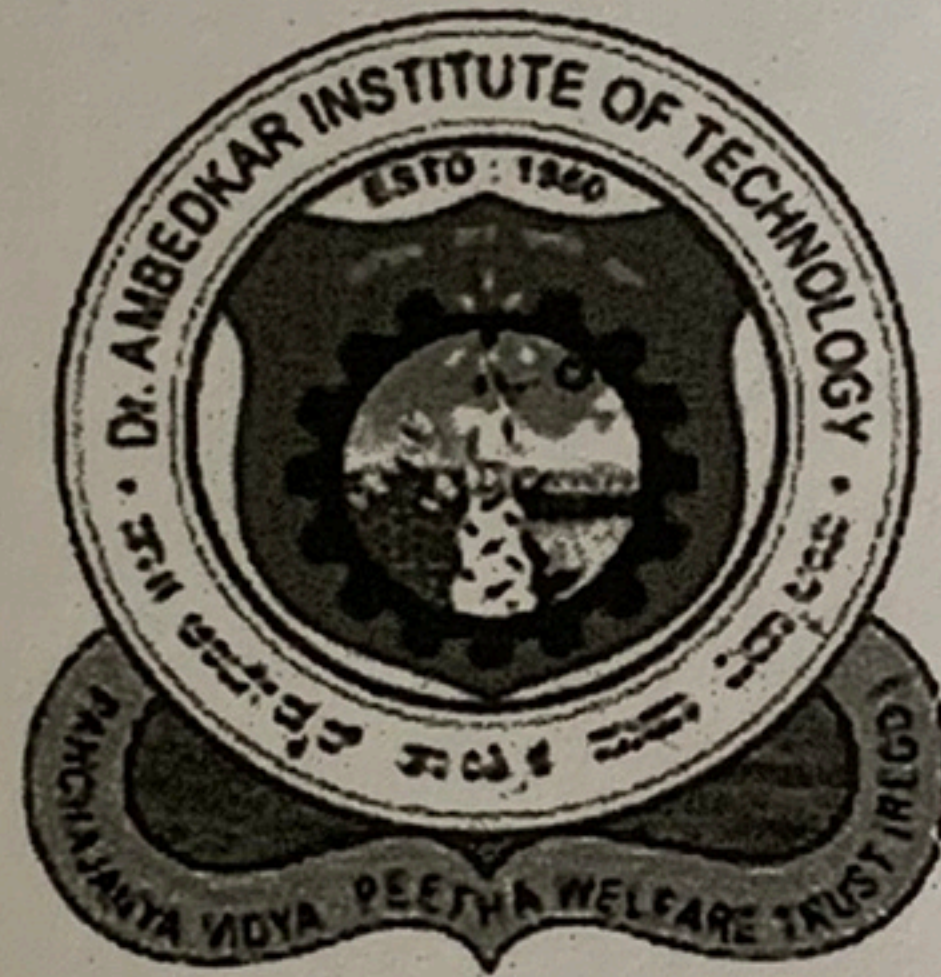

HOD-MCA 5/4/22

Dr. Chandrakanth G Pujari

Dr. Chandrakanth G. Pujari, MCA, MTech, Ph.D
Professor and Head, MCA Program
Dr. Ambedkar Institute of Technology
Bengaluru-560 056

Dr. Ambedkar Institute of Technology, Bengaluru-56
(An Autonomous Institute, Affiliated to VTU, Belagavi)

Master of Computer Applications Program
(Accredited by National Board of Accreditation)



Aided By Govt. of Karnataka

BOS-2020

Board of Studies

held on 13th, August 2020

- 1. MCA BoS Meeting Proceedings**
- 2. Scheme And Syllabus of MCA 2 years (100 Credits)**
- 3. Scheme And Syllabus of MCA V and VI semester (2018-21 Scheme)**
- 4. Scheme and Syllabus of Inter department Electives**



Dr. Ambedkar Institute of Technology, Bengaluru-56
(An Autonomous Institution, Affiliated to V T U, Belagavi)
Master of Computer Applications (MCA)

MINUTES OF BOARD OF STUDIES MEETING – MCA BOARD

VENUE : MCA Department

13th August 2020

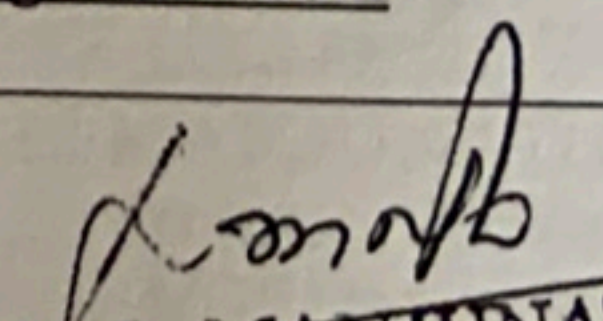
The Board of Studies meeting of MCA Program was held through online on 13th of August 2020 at 11.00 a.m. in the MCA Department at Dr. Ambedkar Institute of Technology, Bengaluru

AGENDA:

1. Finalization of MCA curriculum Scheme for two years duration (2020-22 scheme for 100 credits)
2. Finalization of I year Syllabus for 2020 – 2022 scheme.
3. Review of MCA V and VI semester syllabus of 2018-21 scheme.
4. Review of Vision, Mission, and Program Educational Objectives of MCA program
5. Proposing Inter department Electives
6. Any other curriculum related matter

The following are the members of Board of Studies

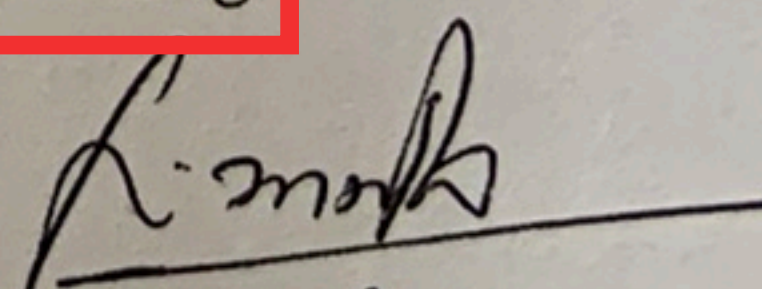
Sl. No	Nomination of the Committee	Member Details
1	Chairman	Dr. L. Manjunatha Rao Professor & Head, Dept. of M.C.A Dr. A.I.T, Bangalore-56 Email: manjuarjun2004@yahoo.com Mob: 9341214327
2.	VTU Nominee	Dr. N.P Kavya. Professor and Director, MCA Program RNSIT, Bengaluru Email: npkavya@gmail.com Mob: 9945275345
3.	R & D representative	Prof. .M R Muralidharan Principal Research Scientist IISc, Bengaluru Email: murali@iisc.ac.in Ph: 22932895
4	External Subject Experts	Dr. Hanumanthappa. M Professor & Director(IQAC- NAAC) Department of Computer Science & Applications, Bangalore University, Bangalore 56. Email: hanu6572@gmail.com Ph: 9448819017, 080-22961451
		Dr. Daya Sagar Professor, Systems Science and Informatics Unit Indian Statistical Institute-Bangalore Centre, Bengaluru Email: bsdsagar@isibang.ac.in +91-9880893291
5	Industry Representative	Mr. Mekala V. Reddy Business Operations Leader IBM, Bengaluru Email: Mekala.reddy@in.ibm.com Mob: 9880406693


DR. L. MANJUNATHA RAO
Professor & Head
MCA Programme

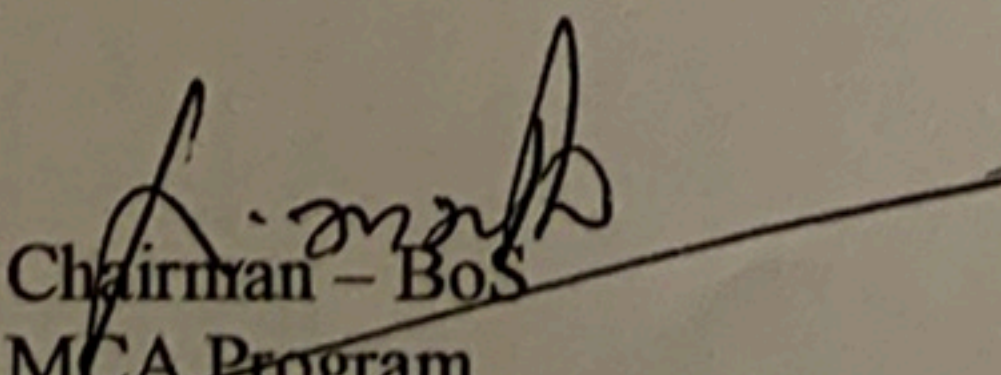
Sl. No	Nomination of the Committee	Member Details
6	Member - Alumni	Mr. Varun Patel Consultant Quinnox Bangalore Email: varunpatel3069@gmail.com Mob: 9886850355
7	Internal Faculty Members with Various specializations	Dr. Bharathi.S Professor(CAS), Dept. of M.C.A Dr. A.I.T, Bangalore-56 Email: bharathishivus@yahoo.co.in Mob: 9902084476
		Dr. Indumathi. S. K Associate Professor, Dept. of M.C.A Dr. A.I.T, Bangalore-56 Email: indukarthik2009@yahoo.in Mob: 9739910995
		Ms. Shobha Rani. B.R Associate Professor, Dept. of M.C.A Dr. A.I.T, Bangalore-56 Email: shobhakrishna8@gmail.com Mob: 9740098198
		Ms. Anitha J Assistant Professor, Dept of M.C.A. Dr. AIT, Bangalore - 56 Email: alochan@rediffmail.com

The Board of Studies has recommended the following points after detailed deliberations.

1. The HOD invited all the BoS members to the Google meet and welcomed all the members individually. All the members were present for the meeting.
2. The HOD has presented the scheme and syllabus of 2020-22 of 2 years MCA Programme for 100 credits in detail and discussed semester wise, each member has suggested few changes as listed in the following points.
3. **Mathematical Foundations for Computer Applications** in I semester is to be redesigned to have 2 modules of statistics to support data science subjects as suggested by Dr. Dayasagar Sir and Mr. Mekala V. Reddy Sir.
4. Dr. Muralidharan sir has proposed to change the course title in the second semester from **Network Architecture and Management** to **Network Architecture and Programming**.


 Dr. L. MANJUNATHA RAO
 Professor & Head
 MCA Programme
 Dr. Ambedkar Institute of Technology
 Bangalore - 560 056.

5. Dr. N.P. Kavya madam has proposed to change the course title in the second semester as Web Technologies instead of Advances in Web Technologies and also suggested to emphasize more on fundamentals.
6. Dr. N.P. Kavya madam has suggested to remove the NOSQL Databases course and introduce RDBMS course in the second semester and also suggested to include NOSQL as one of the modules in Big Data Analytics as elective course.
7. Dr. N.P. Kavya madam has suggested changing the course title from Industry Internship and MOOC Course to MOOC Course and Industry Internship in the fourth semester.
8. Mr. Varun has suggested to advice the students to take up the same problem for both internship and project work to gain more technical knowledge and confidence in the same domain.
9. Mr. Mekhala V. Reddy sir has suggested to register a MOOC course in the same area of internship and project to get in depth technical skills in a specific area of interest.
10. The members appreciated the listed courses and suggested the department to implement all the courses effectively.
11. The members of BoS recommended the scheme and syllabus of 2020-22 scheme for 100 credits with the above specified updations and the same shall be implemented from the academic year 2020 onwards.
12. The HOD has presented the scheme and syllabus of V and VI semesters of 2018-21 scheme of three years MCA Programme which will be implemented during 2020-21 onwards.
13. The members reviewed the 2018-21 scheme and suggested to change the course title as Machine Learning using Python (18MCA51) instead of Machine Learning in the fifth semester and recommended the syllabus of MCA V and VI semesters to implement from the academic year 2020-21 onwards.
14. The members reviewed the department vision, mission and PEOs and recommended the same.
15. The BoS has recommended the list of inter department electives.
16. The BoS meeting was concluded with vote of thanks by the BoS - Chairman


Chairman - BoS
MCA Program
Dr. Ambedkar Institute of Technology

Dr. L. MANJUNATHA RAO
Professor & Head
MCA Programme
Dr. Ambedkar Institute of Technology
Bangalore - 560 050.

Dr. Ambedkar Institute of Technology, Bengaluru-56

(An Autonomous Institute, Approved by AICTE, Affiliated to V T U, Belagavi)

Nationally Accredited by NAAC with 'A' Grade

Master of Computer Applications

(Accredited by National Board of Accreditation)



Aided By Govt. of Karnataka

BOARD OF STUDIES

HELD ON 15th of June 2021

1. MCA BoS Meeting Proceedings
2. Scheme and Syllabus of MCA 2020-2022
3. Scheme and Syllabus of MCA V and VI semester of 2018-2021
4. Scheme and Syllabus of Inter department Electives



Dr. Ambedkar Institute of Technology, Bengaluru-56
 (An Autonomous Institution, Affiliated to V T U, Belagavi)
Master of Computer Applications (MCA)

MINUTES OF BOARD OF STUDIES MEETING – MCA BOARD

VENUE : MCA Department

15th June 2021

The Board of Studies meeting of MCA Program was held through online on 15th of June 2021 at 11.00 a.m.in the MCA Department at Dr. Ambedkar Institute of Technology, Bengaluru.

AGENDA:

1. Finalization of III and IV semester (II year) Syllabus for 2020 – 2022 scheme.
2. Review of MCA I and II semester syllabus of 2020-22 scheme.
3. Review of MCA V and VI semester syllabus of 2018-21 scheme
4. Review of Vision, Mission, and Program Educational Objectives of MCA program
5. Proposing Inter department Electives
6. Any other curriculum related matter

The following are the members of Board of Studies

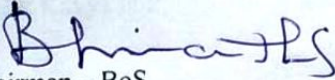
Sl. No	Nomination of the Committee	Member Details
1	Chairman	Dr. Bharathi.S Professor(CAS), Dept. of M.C.A Dr. A.I.T, Bangalore-56 Email: bharathi.mca@drait.edu.in Mob: 9902084476
2.	VTU Nominee	Dr. N.P Kavya. Professor and Director, MCA Program RNSIT, Bengaluru Email: npkavya@gmail.com Mob: 9945275345
3.	R & D representative	Prof. .M R Muralidharan Principal Research Scientist IISc, Bengaluru Email: murali@iisc.ac.in Ph: 22932895
4	External Subject Experts	Dr. Ashoka S. B. Assistant Professor & PG Coordinator Department of Computer Science Maharani Cluster University Bengaluru – 560 001 dr.ashoksbcs@gmail.com
		Dr. Daya Sagar Professor, Systems Science and Informatics Unit Indian Statistical Institute-Bangalore Centre, Bengaluru Email: bsdsagar@isibang.ac.in +91-9880893291
5	Industry Representative	Mr. Mekala V. Reddy Business Operations Leader IBM, Bengaluru Email: Mekala.reddy@in.ibm.com Mob: 9880406693

Sl. No	Nomination of the Committee	Member Details
6	Member - Alumni	Mr. Varun Patel Consultant Quinnox Bangalore Email: varunpatel3069@gmail.com Mob: 9886850355
7	Internal Faculty Members with Various specializations	Dr. Indumathi. S, K Associate Professor, Dept. of M.C.A Dr. A.I.T, Bangalore-56 Email: indumathi.mca@drait.edu.in Mob: 9739910995
		Ms. Shobha Rani. B.R Associate Professor, Dept. of M.C.A Dr. A.I.T, Bangalore-56 Email: shobharani.mca@drait.edu.in Mob: 9740098198
		Ms. Anitha J Assistant Professor, Dept of M.C.A. Dr. A.I.T. , Bangalore – 56 Email: anitha.mca@drait.edu.in Mob: 9845518391

The Board of Studies has recommended the following points after detailed deliberations.

1. The HOD invited all the BoS members to the Google meet and welcomed all the members individually.
2. The HOD has presented the scheme and syllabus of 2020-22 of 2 years MCA Programme for 100 credits in detail and discussed semester wise, each member has suggested few changes as listed in the following points.
3. Dr. Muralidharan sir has proposed to change the course title of 20MCA32 in the III semester from Advances in Java Programming to Advanced Java Programming.
4. Dr. N.P. Kavya madam has proposed to include a program on Q-Learning in Machine learning using python lab (20MCAL36).
5. Dr. Muralidharan sir has proposed to include any network tool like wireshark in the network architecture and programming (20MCA33).
6. Mr. Varun has suggested to rename a module in Full stack web development (20MCA345) as Exposing REST APIs.

7. Dr. N.P. Kavya madam has suggested that the student technical seminar in the III semester to be related to the mini project (20MCAS39).
8. Dr. N.P. Kavya madam has suggested to include the industry certification courses along with MOOC Courses (20MCAI41) in the IV semester.
9. The BoS members recommended to rearrange the concepts of statistics in research methodology (20MCA24) and mathematical and statistical foundations for computer applications (20MCA15) in the I year syllabus.
10. The BoS has recommended modifications in the course content of Web Technologies (20MCA13) in I semester.
11. The BoS has suggested to include the ethical hacking tools in the course content of Ethical Hacking (20MCA255) in II semester.
12. The BoS has approved the list of interdepartment electives.
13. The members appreciated the designed curriculum and suggested the department to implement all the courses effectively.
14. The members of BoS recommended the scheme and syllabus of 2020-22 scheme for 100 credits with the above specified updations and the same shall be implemented from the academic year 2021-22 onwards.
15. The HOD has presented the scheme and syllabus of V and VI semesters of 2018-21 scheme of three years MCA Programme which will be implemented during 2021-22..
16. The members reviewed the department vision, mission and PEOs and recommended the same.
17. The BoS meeting was concluded with vote of thanks by the BoS - Chairman


Chairman – BoS
MCA Program
Dr. Ambedkar Institute of Technology
Dept: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 058

Dr. Ambedkar Institute of Technology, Bengaluru-56
(An Autonomous Institute, Affiliated to VTU, Belagavi)

Master of Computer Applications Program
(Accredited by National Board of Accreditation)



MCA I – IV semester Syllabus
Two years Duration
(2020 – 2022)

Dr. Ambedkar Institute of Technology, Bengaluru – 560056

Master of Computer Applications

Institute - Vision and Mission

Vision

To create Dynamic, Resourceful, Adept and Innovative Technical professionals to meet global challenges.

Mission

- To offer state-of-the-art under graduate, post graduate and doctoral programs in the fields of Engineering, Technology and Management
- To generate new knowledge by engaging faculty and students in research, development and innovation.
- To provide strong theoretical foundation to the students, supported by extensive practical training to meet the industrial requirements.
- To instil moral and ethical values with social and professional commitment.

DEPARTMENT - VISION AND MISSION

VISION

To create a quality human resource with good technical competence to face the global challenges.

MISSION

- To create a Centre of Excellence through industry institute interaction.
- To prepare students for utilizing more creativity, innovativeness and leadership Qualities.
- To inculcate a sense of commitment to the students towards socio-economic development of the nation

Program Educational Objectives

PEO 1: Graduates are prepared to be employed in IT industries and be engaged in learning, understanding, and applying new ideas.

PEO 2: To prepare students for utilizing more creativity, innovativeness and leadership Qualities.

PEO 3: To provide an opportunity to students to learn the latest trends in computer technology and make them ready for life-long learning process with leadership skills and corporate social responsibilities.

Program Outcomes:

PO 1: Ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer based systems.

PO 2: Graduates will be able to demonstrate with excellent programming, analytical, logical and problem solving skills.

PO 3: Graduates will be able to design a computing system to meet desired needs within realistic constraints such as safety, security and applicability.

PO 4: An ability to devise and conduct experiments, interpret data and provide well informed conclusions.

PO 5: An ability to select modern computing tools and techniques and use them with dexterity.

PO 6: An ability to function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude.

PO 7: An ability to appreciate the importance of goal setting and to recognize the need for life-long learning.

PO 8: Develop and maintain medium to large scale application software using theoretical and applied knowledge of software engineering and project management.

PO 9: An ability to communicate effectively.

PO 10: An ability to understand the impact of system solutions in a contemporary, global, economical, environmental, and societal context for sustainable development.

PO 11: An ability to execute the project either individually or in a group.

PO 12: An ability to become an Entrepreneur in the field of information technology to create a value and wealth for the betterment of the individual and society at large.

Dr. Ambedkar Institute of Technology

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Department of Master of Computer Applications

SCHEME OF TEACHING AND EXAMINATION OF MCA FIRST SEMESTER
(AUTONOMOUS) 2020-2022

Sl. No.	Course Code	Course Title	Teaching hours per week			Examination				Credits
			Lecture	Tutorial/ Seminar/ Assignment	Practical / Project	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	20MCA11	Object Oriented Programming using Java	4	-	-	3	50	50	100	4
2	20MCA12	Data structures and algorithms	4	-	-	3	50	50	100	4
3	20MCA13	Web Technologies	4	-	-	3	50	50	100	4
4	20MCA14	RDBMS	3	-	2	3	50	50	100	4
5	20MCA15	Mathematical and Statistical modelling for Computer Applications	4	-	-	3	50	50	100	4
6	20MCAL16	Object Oriented Programming using Java Lab	-	-	2	3	50	50	100	1
7	20MCAL17	Data structures and algorithms Lab	-	-	2	3	50	50	100	1
8	20MCAM18	Mini Project in Web Technologies	-	2	2	3	50	50	100	2
9	20MCAB19	Principles of Programming (Bridge Course – Non-credit)	3	-	-	3	50	50	100	0
Total			22	02	08	27	450	450	900	24

Dep: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 066

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Department of Master of Computer Applications

SCHEME OF TEACHING AND EXAMINATION OF MCA SECOND SEMESTER
(AUTONOMOUS) 2020-2022

Sl. No.	Course Code	Course Title	Teaching hours per week			Examination			Credits	
			Lecture	Tutorial/ Seminar/ Assignment	Practical / Project	Duration in hours	SEE Marks	CIE Marks		Total Marks
1	20MCA21	Python Programming	4	-	-	3	50	50	100	4
2	20MCA22	Internet of Things	4	-	-	3	50	50	100	4
3	20MCA23	Software Engineering and Project Management	4	-	-	3	50	50	100	4
3	20MCA24	Research Methodology	3	-	-	3	50	50	100	3
5	20MCA25	Elective – 1	3		2	3	50	50	100	4
6	20MCA26	Elective - 2	3	-	-	3	50	50	100	3
7	20MCAL27	Python Programming Lab	-	-	2	3	50	50	100	1
8	20MCAL28	Internet of Things Lab	-		2	3	50	50	100	1
09	20MCAM29	Mini Project in Mobile Application Development	-	2	2	3	50	50	100	2
Total			21	02	08	27	450	450	900	26



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Department of Master of Computer Applications
MCA SECOND SEMESTER ELECTIVE COURSES

Elective – 1

S.No	Course Code	Course Title
1.	20MCA251	Cybersecurity
2.	20MCA252	Software Testing and Automation
3.	20MCA253	Data Science using R
4.	20MCA254	Programming using C#
5.	20MCA255	Ethical Hacking

Elective – 2

S.No	Course Code	Course Title
1.	20MCA261	Data Mining and Business Intelligence
2.	20MCA262	Enterprise Resource Planning
3.	20MCA263	Supply Chain Management
4.	20MCA264	Storage Area Networks
5.	20MCA265	Distributed Operating Systems



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Department of Master of Computer Applications
SCHEME OF TEACHING AND EXAMINATION OF MCA THIRD SEMESTER
 (AUTONOMOUS) 2020-2022

Sl. No.	Course Code	Course Title	Teaching hours per week			Examination				Credits
			Lecture	Tutorial/ Seminar/ Assignme	Practical / Project	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1	20MCA31	Machine Learning using Python	4	-	-	3	50	50	100	4
2	20MCA32	Advances in Java Programming	4	-	-	3	50	50	100	4
3.	20MCA33	Network Architecture and Programming	3	-	2	3	50	50	100	4
4	20MCA34	Elective – 3	3		2	3	50	50	100	4
5	20MCA35	Elective - 4	3		-	3	50	50	100	3
6	20MCAL36	Machine Learning using Python Lab	-	-	2	3	50	50	100	1
7	20MCAL37	Advances in Java Programming Lab	-	-	2	3	50	50	100	1
8	20MCAM38	Mini Project	-	-	4	3	50	50	100	2
9.	20MCAS39	Technical Seminar	-	-	2	-	-	50	50	2
Total			17	00	12	27	400	450	850	25



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Department of Master of Computer Applications
MCA THIRD SEMESTER ELECTIVE COURSES

Elective – 3

S.No	Course Code	Course Title
1.	20MCA341	Digital Marketing
2.	20MCA342	Cloud Computing
3.	20MCA343	Big Data Analytics
4.	20MCA344	Programming using GOLang
5.	20MCA345	Fullstack Web Development

Elective-4

S.No	Course Code	Course Title
1.	20MCA351	Block Chain Technology
2.	20MCA352	5G Wireless Technologies
3..	20MCA353	Artificial Intelligence
4.	20MCA354	Software Architecture and Design Patterns
5.	20MCA355	Graph Theory



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Bangalore - 560 066

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Department of Master of Computer Applications
SCHEME OF TEACHING AND EXAMINATION OF MCA FOURTH SEMESTER
 (AUTONOMOUS) 2020-2022

Sl. No.	Course Code	Course Title	Teaching hours per week			Examination				Credits
			Lecture	Tutorial	Practical / Seminar	Duration in hours	SEE Marks	CIE Marks	Total Marks	
1.	20MCAI41	MOOC Course and Industry Internship	-	-	2	3	50	50	100	5
2.	20MCAP42	Project Work	-	-	4	3	150	100	250	20
Total			-	-	6	6	200	150	350	25
Grand Total						350				3000



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 Bangalore - 560 066



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Master of Computer Applications (MCA) Program
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MINUTES OF BOARD OF STUDIES MEETING – MCA BOARD

VENUE : MCA Department

19th June 2018

The Board of Studies meeting of MCA Program at Dr. Ambedkar Institute of Technology was held on 19th of June 2018 in the Department of M.C.A., Dr. AIT Campus, Bengaluru - 560056.

The following are the members of BoS meeting:

Sl. No	Category	Nomination of the Committee	Name of the Person
1	Head of the Department	Chairperson	Dr. L.Manjunatha Rao Prof. & Head, Dept. of M.C.A Dr. A.I.T,Bangalore-56 9341214327 manjuarjun2004@yahoo.com
2.	Experts from outside college nominated by VTU	Member	Dr. K.S. Shreedhara Professor Dept of Computer Science and Engineering UBDT College, Davanagere. 9448009306 ks_shreedhara@yahoo.com
3.	Internal Faculty members with various specializations	Member-1	Dr. Bharathi.S Professor (CAS) Dept. of M.C.A Dr. A.I.T,Bangalore-56 Mob: 9902084476 bharathishivus@yahoo.co.in

Sl. No	Category	Nomination of the Committee	Name of the Person
	Internal Faculty members with various specializations	Member-2	Dr. Chandrakanth. G. Pujari Associate Professor Dept. of M.C.A Dr. A.I.T,Bangalore-56 9845380013 varuncp@rediffmail.com
		Member-3	Dr. Indumathi. S. K Associate Professor, Dept. of M.C.A Dr. A.I.T,Bangalore-56 9739910995 indukarthik2009@yahoo.in
		Member-4	Dr. Dharani N V Assistant Professor, Dept. of M.C.A Dr. A.I.T,Bangalore-56 9739910995 dharanimanoj@gmail.com
4.	Subject Experts from outside the college nominated by academic council	Member-1	Dr. Hanumanthappa . M Professor & Chairman, Department of Computer Science & Applications, Bangalore University, Bangalore 56. Ph:9448819017, 080-22961451
		Member-2	Dr. Daya Sagar Professor Systems Science and Informatics Unit, Indian Statistical Institute- Bangalore Centre, Bengaluru 9880893291 bsdsagar@isibang.ac.in

Sl. No	Category	Nomination of the Committee	Name of the Person
5.	Representative from industry/Corporate sector/allied area relating to placement nominated by academic council	Member-1	Mr. Purushotham B Technical Training Head Mahindra Comviva Bangalore 9980643711 utham74@gmail.com
6.	Representative from industry/Corporate sector/allied area relating to placement nominated by academic council	Member-2	Mr. Chandrashekar Aithal Technical Lead, J.P. Morgan Chase Bangalore 9008059555 aithalchandra@gmail.com
7.	Post graduate meritorious alumnus nominated by Principal	Member	Mr. Pradeep MDM Developer Groove Software Pvt. Ltd Bangalore 7204265665 Prad.trilok@gmail.com
8.	Special Invitees	Member-1	Ms. Malathi. P Assistant Professor, Dept. of M.C.A Dr. A.I.T, Bangalore-56 Mob: 7760880325 bfgcpm@rediffmail.com
		Member-2	Ms. Shailaja L K Assistant Professor Dept. of MCA, Dr. AIT, Bengaluru- 56 Mob: 9739006255 shailaja_lk@yahoo.co.in

Minutes of BoS Meeting

The chairman welcomed all the member of BoS and introduced each one of them to the panel.

- The chairman shared that the MCA Department has been accredited by NBA. The members of BoS congratulated the department for obtaining NBA accreditation. The chairman explained the significance of NBA accreditation to the members.
- The members reviewed the vision and mission of the department. They have recommended the vision and mission as it is, which is mapping with the institution mission and vision.

The Board of Studies recommended the syllabus for MCA Programme for the academic year 2018-19 with the following suggestions through deliberations:

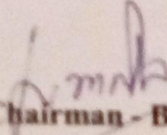
1. Proposed the detailed syllabus for all 6 semesters of MCA program as per CBCS from the academic year 2018 - 2019 by finalizing the core and elective subjects with respect to current industry and all stake holders' requirements (as per the guide lines of ACM, IEEE - Computer Society of India and NBA).
2. Proposed the detailed syllabus for V and VI semesters of MCA program of 2016-19 scheme as per CBCS for the academic year 2018 - 2019 and proposed few suggestions.
3. Proposed the detailed syllabus for all 4 semesters of MCA Direct Program (Two-year program) as per CBCS from the academic year 2018 - 2019 by finalizing the core and elective subjects with respect to current industry and all stake holders' requirements (as per the guide lines of ACM, IEEE - Computer Society of India and NBA).
4. The BoS suggested to introduce the elective **Cyber Security (MCA553)** instead of Distributed Computing (MCA553).
5. The syllabus has been framed with equal weightage of credits to the three components: core academics, industry requirements, and research orientation.
6. Electives are offered in the light of new advancements in the field of information technology.
7. Proposed credit weightage for various components like lectures, tutorials, practicals, seminars, mini projects and Major project for each course.
8. Credits for curriculum components in Master of Computer Applications programme are allotted (mathematics, management, humanities, professional core, electives, project work, and seminar) as per VTU guidelines.
9. Proposed the Scheme of Teaching and Examination for all six/four semesters of MCA programme.
10. Proposed the Course Outcomes (COs) as per the Outcome Based Education of NBA.
11. The BoS has recommended the detailed syllabus, rules and regulations, scheme of teaching and examination for the fifth and sixth semesters of 2016-19 scheme.
 - I. Suggested the board to advise the students to deploy the projects in cloud with Azure or Microsoft cloud tools

- II. Professional Development and leadership skills should be imbibed by students through seminars for achieving lifelong learning skills.
 - III. The members advised to include more lab sessions while handling mobile applications
 - IV. Mini project can be a mobile application deployed in cloud
 - V. The members advised to make the students to publish the sixth semester projects in selected and reputed journals
12. The BoS has recommended the detailed syllabus, rules and regulations, scheme of teaching and examination for V and VI semesters of 2018-21 scheme
- I. Suggested that mobile applications to be lab-based subject
 - II. Introduce Devops as an elective. And also it was suggested to invite a resource person from industry to provide a talk on the industry expectations of Devops
 - III. The I semester subjects to be renamed as Linux Programming, OOPs using C++, Web Technologies, Discrete Mathematical Structures.
 - IV. Members suggested to include the concepts of Tuples, Strings, Databases in Python Programming
 - V. NOSQL Database to replace with Advanced DBMS and include MongoDB
 - VI. To replace Software Engineering with Advanced Software Engineering and include two modules of agile technology, SCRUM, RAD
 - VII. Web Engineering to include REST, SOAP, JSON
 - VIII. Networks lab to be based on virtualization or packet analyzer tools
 - IX. To include an elective for practicing aptitude and soft skills and to mentor students to handle aptitude and soft skill techniques as seminars to improve recruitment process
 - X. Advanced Web Programming to include PHP, JQuery and Angular
 - XI. Software Testing and Practice to have selenium with webdrivers, Cucumbers, Citrus for BDD, TDD
 - XII. Service Oriented Architecture to be replaced by Devops
 - XIII. Introduce Machine Learning as an elective instead of Cloud Computing
 - XIV. An elective on Cyberlaws and CyberSecurity to be included as per the advice of the GOI
 - XV. The BoS committee recommended for final approval of MCA syllabus

- A) MCA V and VI Semesters of 2016-2019 scheme.
- B) MCA I - IV semesters of 2018-2020 scheme of MCA Two-years Direct Program
- C) MCA I - VI semesters of 2018-2021 scheme of MCA program

13. The Syllabus was finalized by incorporating all the suggestions

The BoS meeting was concluded with vote of thanks address by the chairman.


Chairman - BoS

Dr. Ambedkar Institute of Technology, Bengaluru-56

(An Autonomous Institute, Approved by AICTE, Affiliated to V T U, Belagavi)

Nationally Accredited by NAAC with 'A' Grade

Master of Computer Applications

(Accredited by National Board of Accreditation)



MCA I to VI Semester

(2018-21) Scheme & Syllabus

Dr. Ambedkar Institute of Technology, Bengaluru – 560056

Master of Computer Applications

Institute - Vision and Mission

Vision

To create Dynamic, Resourceful, Adept and Innovative Technical professionals to meet global challenges.

Mission

- To offer state-of-the-art under graduate, post graduate and doctoral programs in the fields of Engineering, Technology and Management
- To generate new knowledge by engaging faculty and students in research, development and innovation.
- To provide strong theoretical foundation to the students, supported by extensive practical training to meet the industrial requirements.
- To instill moral and ethical values with social and professional commitment.

DEPARTMENT - VISION AND MISSION

VISION

To create a quality human resource with good technical competence to face the global challenges.

MISSION

- To create a Center of Excellence through industry institute interaction.
- To prepare students for utilizing more creativity, innovativeness and leadership Qualities.
- To inculcate a sense of commitment to the students towards socio-economic development of the nation

Program Educational Objectives

PEO 1: Graduates are prepared to be employed in IT industries and be engaged in learning, understanding, and applying new ideas.

PEO 2: To prepare students for utilizing more creativity, innovativeness and leadership Qualities.

PEO 3: To provide an opportunity to students to learn the latest trends in computer

technology and make them ready for life-long learning process with leadership skills and corporate social responsibilities.

Program Outcomes:

PO 1: Ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modelling and design of computer based systems.

PO 2: Graduates will be able to demonstrate with excellent programming, analytical, logical and problem solving skills.

PO 3: Graduates will be able to design a computing system to meet desired needs within realistic constraints such as safety, security and applicability.

PO 4: An ability to devise and conduct experiments, interpret data and provide well informed conclusions.

PO 5: An ability to select modern computing tools and techniques and use them with dexterity.

PO 6: An ability to function professionally with ethical responsibility as an individual as well as in multidisciplinary teams with positive attitude.

PO 7: An ability to appreciate the importance of goal setting and to recognize the need for life-long learning.

PO 8: Develop and maintain medium to large scale application software using theoretical and applied knowledge of software engineering and project management.

PO 9: An ability to communicate effectively.

PO 10: An ability to understand the impact of system solutions in a contemporary, global, economic, environmental, and societal context for sustainable development.

PO 11: An ability to execute the project either individually or in a group.

PO 12: An ability to become an Entrepreneur in the field of information technology to create a value and wealth for the betterment of the individual and society at large.

		I Semester							
Subject Code	Name of the Subject	Credits				Exam Duration in Hours	Marks		Total Marks
		Lecture	Tutorial	Practicals	Total Credits		CIE	SEE	
18MCA11	OOPS using C++	3	1	-	4	3	50	50	100
18MCA12	Linux Programming	3	1	-	4	3	50	50	100
18MCA13	Web Technologies	3	1	-	4	3	50	50	100
18MCA14	Discrete Mathematical Structures	3	1	-	4	3	50	50	100
18MCA15	Computer Organization and Architecture	2	1	-	3	3	50	50	100
18MCAL16	OOPS Lab	--	-	1	1	3	50	50	100
18MCAL17	Linux Lab	--	-	1	1	3	50	50	100
18MCAL18	Web Technology Lab	--	-	1	1	3	50	50	100
Total		14	5	3	22	24	400	400	800



**Dept: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 066**

		II Semester							
Subject Code	Name of the Subject	Credits			Total Credits	Exam Duration in Hours	Marks		Total Marks
		Lecture	Tutorial	Practicals			CIE	SEE	
18MCA21	Java Programming	3	1	-	4	3	50	50	100
18MCA22	Data Structures using C++	3	1	-	4	3	50	50	100
18MCA23	Analysis and Design of Algorithms	3	1	-	4	3	50	50	100
18MCA24	Database Management System	3	1	-	4	3	50	50	100
18MCA25	Operating System	2	1	-	3	3	50	50	100
18MCAL26	Java Programming Lab	--	-	1	1	3	50	50	100
18MCAL27	Data Structures Lab	--	-	1	1	3	50	50	100
18MCAL28	DBMS lab	--	-	1	1	3	50	50	100
Total		14	5	3	22	24	400	400	800

		III Semester							
Subject Code	Name of the Subject	Credits			Total Credits	Exam Duration in Hours	Marks		Total Marks
		Lecture	Tutorial	Practicals			CIE	SEE	
18MCA31	Network Architecture & Management	3	1	-	4	3	50	50	100
18MCA32	Python Programming	3	1	-	4	3	50	50	100
18MCA33	Advanced Software Engineering	3	1	-	4	3	50	50	100
18MCA34	Data Science using R	2	1	-	3	3	50	50	100
18MCA35	Elective-1	2	1	-	3	3	50	50	100
18MCAL36	Network Architecture Lab	--	-	1	1	3	50	50	100
18MCAL37	Python programming Lab	--	-	1	1	3	50	50	100
18MCAL38	Data Science using R Lab	--	-	1	1	3	50	50	100
Total		13	5	3	21	24	400	400	800



Dept: of Master of Computer Applications
 Dr. Ambedkar Institute of Technology
 Bangalore - 560 056

ELECTIVE-1

Subject Code	Name of the Subject	Credits				Exam Duration	Marks		Total Marks
		L	T	P	Credits		CIE	SEE	
18MCA351	Software Testing and Practices	2	1	-	3	3	50	50	100
18MCA352	Advanced DBMS	2	1	-	3	3	50	50	100
18MCA353	Artificial Intelligence	2	1	-	3	3	50	50	100



**Dept: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 066**

		IV Semester							
Subject Code	Name of the Subject	Credits				Exam Duration in Hours	Marks		Total Marks
		Lecture	Tutorial	practicals	Total Credits		CIE	SEE	
18MCA41	Enterprise Applications-1	2	1	-	3	3	50	50	100
18MCA42	Advanced Web Technologies	2	1	-	3	3	50	50	100
18MCA43	Analytical Skills And Building Professional Development	2	1	-	3	3	50	50	100
18MCA44	Elective-2	2	1	-	3	3	50	50	100
18MCA45	Elective-3	2	1	-	3	3	50	50	100
18MCA46	Research Methodology	1	1	--	2	3	50	50	100
18MCAL47	Enterprise Applications Lab	--	-	1	1	3	50	50	100
18MCAL48	Advanced Web Technologies Lab	--	-	1	1	3	50	50	100
18MCAM49	Mini Project using Android	--	-	2	2	3	50	50	100
Total		11	6	4	21	27	450	450	900



Dept: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 066

ELECTIVE-2

Subject Code	Name of the Subject	Credits				Exam Duration	Marks		Total Marks
		L	T	P	Credits		CIE	SEE	
18MCA441	Information Security	2	1	--	3	3	50	50	100
18MCA442	Data Mining & Business Intelligence	2	1	--	3	3	50	50	100
18MCA443	Object oriented Modelling & Design	2	1	--	3	3	50	50	100

ELECTIVE-3

Subject Code	Name of the Subject	Credits				Exam Duration	Marks		Total Marks
		L	T	P	Credits		CIE	SEE	
18MCA451	Software Quality & Performance Evaluation	2	1	--	3	3	50	50	100
18MCA452	Software Architecture	2	1	--	3	3	50	50	100
18MCA453	Enterprise Resource Planning	2	1	--	3	3	50	50	100



Dept: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 066

		V Semester							
Subject Code	Name of the Subject	Credits			Total Credits	Exam Duration in Hours	Marks		Total Marks
		Lecture	Tutorial	practicals			CIE	SEE	
18MCA51	Machine Learning	3	1	-	4	3	50	50	100
18MCA52	Big Data Analytics	2	1	-	3	3	50	50	100
18MCA53	Cloud Computing	2	1	-	3	3	50	50	100
18MCA54	Elective -4	2	1	-	3	3	50	50	100
18MCA55	Elective -5	2	1	-	3	3	50	50	100
18MCAL56	Machine Learning Lab	--	-	1	1	3	50	50	100
18MCAL57	Big Data Analytics Lab	--	-	1	1	3	50	50	100
18MCAL58	Cloud Computing Lab	--	-	1	1	3	50	50	100
18MCAI59	Industry Internship (6 weeks)	--	--	--	5	3	50	50	100
Total		10	5	4	24	27	450	450	900



Dept: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 066

ELECTIVE-4**V SEMESTER**

Subject Code	Name of the Subject	Credits				Exam Duration	Marks		Total Marks
		L	T	P	Credits		CIE	SEE	
18MCA541	Enterprise Application-2	2	1	--	3	3	50	50	100
18MCA542	Full Stack Development with MERN	2	1	--	3	3	50	50	100
18MCA543	DevOps	2	1	--	3	3	50	50	100

ELECTIVE-5**V SEMESTER**

Subject Code	Name of the Subject	Credits				Exam Duration	Marks		Total Marks
		L	T	P	Credits		CIE	SEE	
18MCA551	Web Services	2	1	-	3	3	50	50	100
18MCA552	Internet of Things	2	1	-	3	3	50	50	100
18MCA553	Block Chain Technology	2	1	-	3	3	50	50	100



Dept: of Master of Computer Applications
Dr. Ambedkar Institute of Technology
Bangalore - 560 056

VI SEMESTER

Subject Code	Name of the Subject	Internal	External	Dissertation Evaluation	Viva voce	Total Marks	Credits
18MCAS61	Technical Seminar	50	--	--	--	50	2
18MCAP62	Project Work	50	-	100	100	250	20
Total		100	--	100	100	300	22

Grand Total (I to VI Semesters): 4500 Marks : 132 Credits

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