MINUTES OF BOARD OF STUDIES MEETING

The BoS meeting of Department of Computer Science and Engineering was held on July 19, 2020 and the following programme were reviewed:

1. MCA
2. BCA+MCA
3. M.Tech. in AI with specialisation in Machine Learning, M.Tech. (AIML)
4. B.Tech + M.Tech (Artificial Intelligence & Machine Learning), B.Tech. + M.Tech.(AIML)
5. M.Tech. in AI with specialisation in Robotics , M.Tech.(AIR)
6. B.Tech + M.Tech (Artificial Intelligence & Robotics), B.Tech. + M.Tech.(AIR)
7. M.Tech in Network and Cyber Security, M.Tech. (NCS)

Members of the BoS , external experts and other faculty members of CSE department attended the meeting:

1. Dr. S.N. Sridhara - Director ASET
2. Dr. Shalini Bhaskar Bajaj - HoD(CSE) and AIIT
3. Dr. Vivek Jaglan (External Expert- Academia)
4. Mr. Shubham Jain (External Expert - Industry)
5. Mr. Pankaj Verma (External Expert - Industry)
6. Dr. Sanjeev Sharma
7. Dr. Subhra Das
8. Dr. Rajesh Tyagi
9. Dr. Sunil Sikka
10. Dr. Vikas Thada
11. Dr. Shweta Sinha
12. Dr. Anil Mishra
13. Dr. Aman Jatain
14. Dr. Charu Jain
15. Dr. Meenu
16. Dr. Jitendra Verma
17. Dr. Khushboo Tripathi
18. Dr. Yojna Arora
19. Dr. Rashmi Gupta
20. Mr. Anuj Kumar
21. Ms. Aarti Chugh
22. Mr. Utpal Srivastava

The BoS Meeting held online through MS Team

Shalini

Dr. Shalini Bhaskar Bajaj
Director ASET

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Director ASET

23. Mr. Akshat Agarwal
24. Mr. Ankit Garg
25. Ms. Poonam Sharma
26. Ms. Sarika Chaudhary
27. Ms. Pooja Nagpal
28. Ms. Swati Gupta
29. Ms. Komal Rana
30. Ms. Ruchi
31. Mr. Krishan Kumar
32. Ms. Deepthi
33. Ms. Nishu Sethi
34. Ms. Neha Bhateja
35. Ms. Shivangi
36. Mr. Vivek Birla
37. Ms. Ashima Gambhir
38. Ms. Ashima Narang
39. Ms. Priyanka Makkar

The BoS Meeting held online through MS Team

Dr. Shalini Bhaskar Bajaj
Director ASET

Meeting started with a welcome note to the external experts and faculty members at 10:30 am.

Review of the following ongoing Programmes:
1. **M.Tech (AIML) - 100 credits**
2. **B.Tech + M.Tech (AIML) - 260 credits**

Proposal of the following Programmes:
1. **M.Tech (AIR) - 100 credits**
2. **B.Tech + M.Tech (AIR) - 260 credits**

Proposal to add a new concentration elective course on "Block Chain Technology" in M.Tech. (NCS) , 2nd semester and changes in the syllabus of "Optimisation Techniques" course were approved in the meeting.

M.Tech (NCS) SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practi-cal (P) Hours Per Week	Total Cred-its
Engineering Science Courses					

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NCE4201	Mathematical Foundation for Cyber Security	3	-	-	3
NCE4202	Network and Wireless Security	3	-	-	3
NCE4203	Cyber Crime and IT Law	3	-	-	3
NCE4204	Cyber Crime Investigation & Forensics	3	-	-	3
NCE4205	Intrusion Detection & Prevention System	3	-	-	3
NCE4206	Research Methodology & Technical Report Writing	2	-	-	2
Laboratory Courses					
NCE4207	Cryptography Foundation Lab	-	-	2	1
NCE4208	Web Security Lab	-	-	2	1
NCE4209	Network Security Lab	-	-	2	1
Concentration Elective (Any One)					
NCE4210	Big Data Systems	3	-	-	3
NCE4211	Distributed System Security	3	-	-	3
	Blockchain Technology	**3**	**-**	**-**	**3**
Value Added Courses					
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication& Relationship Management	1	-	-	1
Foreign Language-II (As opted in 1st Semester)					
LAN4251	French-II	3	-	-	3
LAN4252	German-II				
LAN4253	Spanish-II				
LAN4254	Russian-II				
LAN4255	Chinese-II				
LAN4256	Portuguese-II				
LAN4257	Korean-II				
LAN4258	Japanese-II				
LAN4259	Hindi-II				
	TOTAL				**28**

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The programme structure of existing M.Tech. (AIML) has been revised as per the industry standards. From the existing programme few courses has been replaced by more relevant courses. The details of the replaced courses and justification for the change has been summarised in the table below:

M.Tech (AIML)		
Existing Courses	**New courses proposed**	**Justification, if change is proposed**
First Semester		
Advanced Data Structure & Algorithms	No Change	
Advanced Database Management Systems		
Digital Computer Organization		
Advanced Computer Networks		
Advanced Data Structure & Algorithms Lab		
Advanced Database Management Systems Lab		
Advanced Computer Networks Lab		
MATLAB Programming		
Python Programming Lab		
Value Added Courses		
Foreign Language-I		
Second Semester		
Fundamental of Robotics System & Robot Programming	Applied Statistical Analysis	Fundamentals of Robotic System and Robot Programming is more closely related to the field of Robotics whereas Applied Statistical Analysis discusses statistical analysis concepts which are relevant to machine learning specialisation.

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Advanced Control Systems and Drives for Robots	Data Mining and Predictive Analysis	Advanced Control Systems and Drives for Robots is more closely related to the field of Robotics whereas for specialisation in Machine learning Data Mining and Predictive Analysis is more important as it discusses predictive analytic concepts which are relevant to machine learning specialisation.
Microprocessor and Interfacing	Data Warehousing and Multi-dimensional Modeling	Microprocessor and Interfacing is more closely related to the field of Robotics whereas Data Warehousing and Multi-dimensional Modeling discusses Data warehousing concepts which are relevant to machine learning specialisation.
Kinematics & Dynamics of Robots	Big Data Technologies	Kinematics & Dynamics of Robots is more closely related to the field of Robotics whereas Big Data Technologies discusses concepts related to handling big data which are relevant to machine learning specialisation.
Advanced Applied Mathematics for Engineering	removed	The subject is not relevant to Machine Learning as mathematical concepts related to the field of machine learning are already discussed in Applied Statistical Analysis course.
Research Methodology & Technical Report Writing	No Change	
Fundamental of Robotics System & Robot Programming Lab	Applied Statistical Analysis Lab	Laboratory sessions are offered as per the subjects (justification is provided above)
Advanced Control Systems & Drives for Robots Lab	Data Mining and Predictive Analysis	Laboratory sessions are offered as per the subjects (justification is provided above)

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Microprocessor and Interfacing Lab	Data Warehousing and Multi-dimensional Modeling Lab	Laboratory sessions are offered as per the subjects (justification is provided above)
	R-Programming Lab	new course added. R programming is a great tool for handling big data and its knowledge is important for a machine learning expert.
Concentration Elective	Following Concentration electives added: 1. Fundamental of Artificial Intelligence 2. Database and Knowledge Base Systems 3. Information Management System	For better understanding of machine learning concepts, a list of elective courses is added. Depending upon the interest of the student elective can be offered.
Value Added Courses	No Change	
Foreign Language-II	No Change	
Third Semester		
Automation in Manufacturing Systems	Natural Language Processing	Automation in Manufacturing Systems is more closely related to the field of Robotics whereas Natural Language Processing discusses concepts related to handling data related to NLP which are relevant to machine learning specialisation.
Robotic Sensors, Vision and Hardware Implementation	Neural Network and Fuzzy Logic	Robotic Sensors, Vision and Hardware Implementation is more closely related to the field of Robotics whereas Neural Network and Fuzzy Logic discusses concepts related to neural network and applying fuzzy logic which are relevant to machine learning specialisation.
Pattern Recognition & Image Processing	No Change	

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Robotic Sensors, Vision and Hardware Implementation Lab	Neural Network and Fuzzy Logic Lab	Laboratory sessions are offered as per the subjects (justification is provided above)
Pattern Recognition & Image Processing Lab	No Change	
	Hadoop Lab	new course added. Hadoop is a great tool for handling big data and its knowledge is important for a machine learning expert.
Summer Internship Evaluation	No Change	
Dissertation-I	No Change	
Concentration Elective I	Following Concentration electives added: 1. Descriptive Analysis 2. Optimization Techniques	For better understanding of machine learning concepts, a list of elective courses is added. Depending upon the interest of the student elective can be offered.
Concentration Elective II	Following Concentration electives added: 1. Social Network Data Analytics 2. Agent Based Intelligent Systems	For better understanding of machine learning concepts, a list of elective courses is added. Depending upon the interest of the student elective can be offered.
Value Added Courses	No Change	
Foreign Language-II	No Change	
Fourth Semester		
Dissertation-II	No Change	

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Programme Structure of M.Tech (Artificial Intelligence with specialisation in Machine Learning), M.Tech (AIML)*

FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
Engineering Science Courses					
	Advanced Data Structure & Algorithms	3	-	-	3
	Advanced Database Management Systems	3	-	-	3
	Digital Computer Organization	3	-	-	3
	Advanced Computer Networks	3	-	-	3
Laboratory Courses					
	Advanced Data Structure & Algorithms Lab	-	-	2	1
	Advanced Database Management Systems Lab	-	-	2	1
	Advanced Computer Networks Lab	-	-	2	1
	MATLAB Programming	-	-	4	2
	Python Programming Lab	-	-	2	1
Value Added Courses					
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development and Interpersonal Skills	1	-	-	1
Foreign Language-I (Any One)					
LAN4151	French-I	3	-	-	3
LAN4152	German-I				
LAN4153	Spanish-I				
LAN4154	Russian-I				
LAN4155	Chinese-I				

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LAN4156	Portuguese-I				
LAN4157	Korean-I				
LAN4158	Japanese-I				
LAN4159	Hindi-I *				
TOTAL					23

** Hindi as Foreign Language for Foreign National Students.*

SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practi-cal (P) Hours Per Week	Total Cred-its
Engineering Science Courses					
	Applied Statistical Analysis	3	-	-	3
	Data Mining and Predictive Analysis	3	-	-	3
	Data Warehousing and Multi-di-mensional Modeling	3	-	-	3
	Big Data Technologies	3	-	-	3
	Research Methodology & Techni-cal Report Writing	2	-	-	2
Laboratory Courses					
	Applied Statistical Analysis Lab	-	-	2	1
	Data Mining and Predictive Analysis	-	-	2	1
	Data Warehousing and Multi-di-mensional Modeling Lab	-	-	4	2
	R-Programming Lab	-	-	4	2
Concentration Elective (Any One)					
	Database and Knowledge Base Systems	3	-	-	3
	Fundamental of Artificial Intelli-gence	3			3

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	Information Management System	3	-	-	3
Value Added Courses					
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication& Relationship Management	1	-	-	1
Foreign Language-II (As opted in 1st Semester)					
LAN4251	French-II	3	-	-	3
LAN4252	German-II				
LAN4253	Spanish-II				
LAN4254	Russian-II				
LAN4255	Chinese-II				
LAN4256	Portuguese-II				
LAN4257	Korean-II				
LAN4258	Japanese-II				
LAN4259	Hindi-II				
TOTAL					**28**

THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Science Courses					
	Pattern Recognition and Image Processing	3	-	-	3
	Neural Network and Fuzzy Logic	3	-	-	3
	Natural Language Processing	3	-	-	3
Laboratory Courses					
	Pattern Recognition and Image Processing Lab	-	-	2	1
	Neural Network and Fuzzy Logic Lab	-	-	2	1

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	Hadoop Lab	-	-	4	2
Summer Internship					
	Summer Internship Evaluation	-	-	-	6
Dissertation					
	Dissertation-I	-	-	-	5
Concentration Elective I (Any One)					
	Descriptive Analysis	3	-	-	3
	Optimization Techniques	3	-	-	3
Concentration Elective II (Any One Set)					
	Social Network Data Analytics	3	-	-	3
	Agent Based Intelligent Systems	3	-	-	3
Value Added Courses					
CSS4351	Interpersonal Communication	1	-	-	1
BE-H4351	Leading Through Teams	1	-	-	1
Foreign Language-III (As opted in 1st Semester)					
LAN4351	French-III	2	-	-	2
LAN4352	German-III				
LAN4353	Spanish-III				
LAN4354	Russian-III				
LAN4355	Chinese-III				
LAN4356	Portuguese-III				
LAN4357	Korean-III				
LAN4358	Japanese-III				
LAN4359	Hindi-III				
TOTAL					**34**

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FOURTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practi-cal (P) Hours Per Week	Total Cred-its
Dissertation					
	Dissertation-II	-	-	-	15
	TOTAL				**15**

M.Tech. (AIR) was discontinued in year 2019 but due to demand for the M.Tech.(AIR) programme, it has been revived with the same structure (tabulated below) approved in the BoS held in July 2017. The semester wise programme structure is approved in the current BoS (July 19, 2020) and is tabulated below:

Programme Structure of M.Tech (Artificial Intelligence with specialisation in Robotics), M.Tech (AIR)*

FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practic al (P) Hours Per week	Total Credit s
Engineering Science Courses					
	Advanced Data Structure & Algorithms	3	-	-	3
	Advanced Database Management Systems	3	-	-	3
	Digital Computer Organization	3	-	-	3
	Advanced Computer Networks	3	-	-	3
Laboratory Courses					
	Advanced Data Structure & Algorithms Lab	-	-	2	1

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	Advanced Database Management Systems Lab	-	-	2	1
	Advanced Computer Networks Lab	-	-	2	1
	MATLAB Programming	-	-	4	2
	Python Programming Lab	-	-	2	1
Value Added Courses					
CSS4151	Basics of Communication	1	-	-	1
BEH4151	Self Development and Interpersonal Skills	1	-	-	1
Foreign Language-I (Any One)					
LAN4151	French-I	3	-	-	3
LAN4152	German-I				
LAN4153	Spanish-I				
LAN4154	Russian-I				
LAN4155	Chinese-I				
LAN4156	Portuguese-I				
LAN4157	Korean-I				
LAN4158	Japanese-I				
LAN4159	Hindi-I *				
TOTAL					**23**

**** Hindi as Foreign Language for Foreign National Students.***

SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Science Courses					
	Fundamental of Robotics System & Robot Programming	3	-	-	3

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	Advanced Control Systems and Drives for Robots	3	-	-	3
	Microprocessor and Interfacing	3	-	-	3
	Kinematics & Dynamics of Robots	3	-	-	3
	Advanced Applied Mathematics for Engineering	3	-	-	3
	Research Methodology & Technical Report Writing	2	-	-	2
Laboratory Courses					
	Fundamental of Robotics System & Robot Programming Lab	-	-	2	1
	Advanced Control Systems & Drives for Robots Lab	-	-	2	1
	Microprocessor and Interfacing Lab	-	-	2	1
Concentration Elective (Any One)					
	Fundamentals of Artificial Intelligence for Robotics	3	-	-	3
	Robotic Simulation & Simultaneous Localization Mapping	3	-	-	3
Value Added Courses					
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication& Relationship Management	1	-	-	1
Foreign Language-II (As opted in 1st Semester)					
LAN4251	French-II	3	-	-	3
LAN4252	German-II				
LAN4253	Spanish-II				
LAN4254	Russian-II				
LAN4255	Chinese-II				
LAN4256	Portuguese-II				
LAN4257	Korean-II				
LAN4258	Japanese-II				

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LAN4259	Hindi-II				
TOTAL					28

THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Science Courses					
	Automation in Manufacturing Systems	3	-	-	3
	Robotic Sensors, Vision and Hardware Implementation	3	-	-	3
	Pattern Recognition & Image Processing	3	-	-	3
Laboratory Courses					
	Robotic Sensors, Vision and Hardware Implementation Lab	-	-	4	2
	Pattern Recognition & Image Processing Lab	-	-	2	1
Summer Internship					
	Summer Internship Evaluation	-	-	-	6
Dissertation					
	Dissertation-I	-	-	-	5
Concentration Elective i (Any One)					
	Optimization Techniques	3	-	-	3
	CNC Machines & Adaptive Control	3	-	-	3
Concentration Elective II (Any One Set)					
	Neural Network and Fuzzy Logic	3	-	-	3
	Neural Network and Fuzzy Logic Lab	-	-	2	1

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	Decision Making Systems Decision Making Systems Lab	3 -	- -	- 2	3 1
Value Added Courses					
CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading Through Teams	1	-	-	1
Foreign Language-III (As opted in 1st Semester)					
LAN4351	French-III	2	-	-	2
LAN4352	German-III				
LAN4353	Spanish-III				
LAN4354	Russian-III				
LAN4355	Chinese-III				
LAN4356	Portuguese-III				
LAN4357	Korean-III				
LAN4358	Japanese-III				
LAN4359	Hindi-III				
TOTAL					**34**

FOURTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Dissertation					
	Dissertation-II	-	-	-	15
TOTAL					**15**

Following were the discussions points

1. Dr. S.N.Sridhara, Director, ASET asked to verify the ratio of NTCC course in the programme to be as per the UGC norms.
2. Mr. Anuj K. Singh verified the CS and BS courses included in the programme structure.

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The points raised during the discussion are verified and the programme structures of M.Tech (AIML) and M.Tech. (AIR) are presented for assigning codes.

Review of ongoing Dual Degree Programme B.Tech + M.Tech (AIML) - 260 credits (starting year 2019, currently running) and Proposal for Dual Degree Programme B.Tech + M.Tech (AIR) - 260 credits (year 2020)

Dual Degree Programme B.Tech + M.Tech (AIML) curriculum was approved upto seven semesters in the BoS held in 2019. Last three semesters (8th , 9th and 10th) are presented in BoS held on July 19, 2020 on the same guidelines as followed in M.Tech. (AIML) programme. Programme structure of the **Dual Degree Programme B.Tech + M.Tech (AIML)** is given below:

Programme Structure of B.Tech +M.Tech (Artificial Intelligence & Machine Learning)*

FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
AIE6101	Engineering Mathematics-I	3	1	-	4
AIE6102	Engineering Physics	2	1	-	3
AIE6104	Introduction to Computers & Programming in C	2	1	-	3
AIE6109	Elements of Mechanical Engineering	3	-	-	3
AIE6105	Engineering Physics Lab	-	-	2	1
AIE6106	Programming in C Lab	-	-	2	1
AIE6110	Elements of Mechanical Engineering Lab	-	-	2	1
	Open Electives				**9**
CSS2152	English-I	1	-	-	1
BEH2151	Understanding Self for Effectiveness	1	-	-	1
ENV2152	Environmental Studies	4	-	-	4
	Foreign Language-I	3	-	-	3

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LAN2170	French for Technology-I				
LAN2152	German-I				
LAN2153	Spanish-I				
LAN2154	Russian-I				
LAN2155	Chinese-I				
LAN2156	Portuguese-I				
LAN2157	Korean-I				
LAN2158	Japanese-I				
LAN2159	Hindi-I **				
	TOTAL				**25**

** Hindi as Foreign Language for Foreign National Students

SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
AIE6201	Engineering Mathematics-II	3	1	-	4
AIE6202	Engineering Chemistry	2	-	-	2
AIE6204	Object Oriented Programming using C ++	2	1	-	3
AIE6210	Engineering Mechanics	2	1	-	3
AIE6212	Basics of Electrical & Electronics Engineering	2	1	-	3
AIE6207	Engineering Chemistry Lab	-	-	2	1
AIE6208	Object Oriented Programming using C ++ Lab	-	-	2	1
AIE6211	Engineering Graphics Lab	-	-	4	2
AIE6213	Basics of Electrical & Electronics Engineering Lab	-	-	2	1
	Open Electives				**5**
CSS2252	English-II	1	-	-	1

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BEH2251	Problem Solving and Creative Thinking	1	-	-	1
	Foreign Language-II	3	-	-	3
LAN2270	French for Technology-II				
LAN2252	German-II				
LAN2253	Spanish-II				
LAN2254	Russian-II				
LAN2255	Chinese-II				
LAN2256	Portuguese-II				
LAN2257	Korean-II				
LAN2258	Japanese-II				
LAN2259	Hindi-II				
	TOTAL				**25**

THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
AIE6302	Database Management Systems	3	1	-	4
AIE6303	Operating Systems	3	-	-	3
AIE6304	Data Structures using C	3	1	-	4
AIE6313	Digital Electronics	2	-	-	2
AIE6305	Data Structures using C Lab	-	-	2	1
AIE6307	Database Management System Lab	-	-	2	1
AIE6308	UNIX Programming Lab	-	-	2	1
AIE6314	Digital Electronics Lab	-	-	2	1
	Concentration Electives (Any one/ one set)				**3**
AIE6310	E-Commerce & ERP	3	-	-	3
AIE6311	Electronic Devices and Circuits	2	-	-	2
AIE6312	Electronic Devices and Circuits Lab	-	-	2	1

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AIE6315	Statistics & Probability Concepts	3	-	-	3
	Open Electives				**4**
CSS2151	Effective Listening	1	-	-	1
BEH2351	Group Dynamics and Team Building	1	-	-	1
	Foreign Language-III	2	-	-	2
LAN2370	French for Technology-III				
LAN2352	German-III				
LAN2353	Spanish-III				
LAN2354	Russian-III				
LAN2355	Chinese-III				
LAN2356	Portuguese-III				
LAN2357	Korean-III				
LAN2358	Japanese-III				
LAN2359	Hindi-III				
	TOTAL				**24**

FOURTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
AIE6403	Discrete Mathematics	3	-	-	3
AIE6404	Artificial Intelligence	3	-	-	3
AIE6413	Analysis & Design of Algorithm	3	-	-	3
AIE6414	Data Communication & Computer Networks	3	-	-	3
AIE6406	Artificial Intelligence Lab	-	-	2	1
AIE6415	Data Communication & Computer Networks Lab	-	-	2	1
AIE6416	Analysis & Design of Algorithm Lab	-	-	2	1
	Concentration Electives (Any one set)				**3**
AIE6407	Communication Systems	2	-	-	2

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AIE6408	Communication Systems Lab	-	-	2	1
AIE6411	Artificial Neural Network	2	-	-	2
AIE6412	Artificial Neural Network Lab	-	-	2	1
AIE6417	Web Designing Technologies	2	-	-	2
AIE6418	Web Designing Technologies Lab	-	-	2	1
	Open Electives				**4**
CSS2251	Presentation Skills	1	-	-	1
BEH2451	Stress and Coping Strategies	1	-	-	1
	Foreign Language-IV	2	-	-	2
LAN2470	French for Technology -IV				
LAN2452	German-IV				
LAN2453	Spanish-IV				
LAN2454	Russian-IV				
LAN2455	Chinese-IV				
LAN2456	Portuguese-IV				
LAN2457	Korean-IV				
LAN2458	Japanese-IV				
LAN2459	Hindi-IV				
	TOTAL				**22**

SUMMER INTERNSHIP

FIFTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
AIE6502	Computer Architecture	3	-	-	3
AIE6503	Java Programming	3	-	-	3

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AIE6504	Advance Data Structures & Algorithm	3	-	-	3
AIE6515	Microprocessor	2	1	-	3
AIE6516	Theory of Automata & Computation	3	-	-	3
AIE6507	Java Programming Lab	-	-	2	1
AIE6508	Python Programming Lab	-	-	2	1
AIE6509	Advance Data Structures & Algorithm Lab	-	-	2	1
AIE6517	Microprocessor Lab	-	-	2	1
AIE6535	Summer Internship Evaluation-I	-	-	-	3
	Concentration Electives (Any one/ one set)				**3**
AIE6511	Fuzzy Logic & Genetic Algorithm	3	-	-	3
AIE6512	VHDL Programming	2	-	-	2
AIE6513	VHDL Programming Lab	-	-	2	1
AIE6518	Advanced Web Designing Technologies	2	-	-	2
AIE6519	Advanced Web Designing Technologies Lab	-	-	2	1
	Open Electives				**4**
CSS2351	Reading & Comprehension	1	-	-	1
BEH2552	Personality, Nationalism and Human Values	1	-	-	1
	Foreign Language-V	2	-	-	2
LAN2570	French for Technology-V				
LAN2552	German-V				
LAN2553	Spanish-V				
LAN2554	Russian-V				
LAN2555	Chinese-V				
LAN2556	Portuguese-V				
LAN2557	Korean-V				
LAN2558	Japanese-V				
LAN2559	Hindi-V				
	TOTAL				**29**

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SIXTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
AIE6603	Advanced Java Programming	3	-	-	3
AIE6604	Advance Database Management System	3	-	-	3
AIE6605	Digital Computer Organization	3	-	-	3
AIE6614	Software Engineering	3	-	-	3
AIE6615	Internet of Things & Wireless Sensor Networks	3	-	-	3
AIE6608	Advanced Java Programming Lab	-	-	2	1
AIE6609	Advance Database Management System Lab	-	-	2	1
AIE6616	Software Engineering Lab	-	-	2	1
AIE6637	Minor Project-I	-	-	-	2
	Concentration Electives (Any one/ one set)				**3**
AIE6612	VLSI Design	2	-	-	2
AIE6613	VLSI Design Lab	-	-	2	1
AIE6617	Open Source Technologies	2	-	-	2
AIE6618	Open Source Technologies Lab	-	-	2	1
AIE6619	Data Mining	3	-	-	3
	Open Electives				**4**
CSS2451	Corporate Communication	1	-	-	1
BEH2652	Interpersonal Communication	1	-	-	1
	Foreign Language-VI	2	-	-	2
LAN2670	French for Technology-VI				
LAN2652	German-VI				
LAN2653	Spanish-VI				
LAN2654	Russian-VI				
LAN2655	Chinese-VI				
LAN2656	Portuguese-VI				

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LAN2657	Korean-VI				
LAN2658	Japanese-VI				
LAN2659	Hindi-VI				
	TOTAL				**27**

SUMMER INTERNSHIP

SEVENTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
AIE6702	Computer Graphics	3	-	-	3
AIE6704	Advanced Computer Networks	3	-	-	3
AIE6713	Cryptography & Network Security	2	1	-	3
AIE6714	System Programming & Compiler Construction	3	-	-	3
AIE6706	Computer Graphics Lab	-	-	2	1
AIE6707	Advanced Computer Networks Lab	-	-	2	1
AIE6708	MATLAB Programming	-	-	4	2
AIE6715	Network Security Lab	-	-	2	1
AIE6716	System Programming & Compiler Construction Lab	-	-	2	1
AIE6735	Summer Internship Evaluation-II	-	-	-	3
AIE6737	Minor Project-II	-	-	-	2
	Concentration Electives (Any one/one set)				**3**
AIE6710	Mobile Computing	3	-	-	3
AIE6717	Robotic Process Automation Design & Development	3	-	-	3
AIE6718	Responsive Web Design	2	-	-	2
AIE6719	Responsive Web Design Lab	-	-	2	1
	Open Electives				**4**

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CSS2551	Employability Skills	1	-	-	1
BEH2751	Relationship Management	1	-	-	1
	Foreign Language-VII	2	-	-	2
LAN2770	French for Technology-VII				
LAN2752	German-VII				
LAN2753	Spanish-VII				
LAN2754	Russian-VII				
LAN2755	Chinese-VII				
LAN2756	Portuguese-VII				
LAN2757	Korean-VII				
LAN2758	Japanese-VII				
LAN2759	Hindi-VII				
	TOTAL				**30**

EIGHTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Applied Statistical Analysis	3	-	-	3
	Data Mining and Predictive Analysis	3	-	-	3
	Data Warehousing and Multi-dimensional Modeling	3			3
	Big Data Technologies	3	-	-	3
	Applied Statistical Analysis Lab	-	-	2	1
	Data Mining and Predictive Analysis	-	-	2	1
	Data Warehousing and Multi-dimensional Modeling Lab	-	-	4	2
	R-Programming Lab	-	-	4	2
	Research Methodology & Technical Report Writing	2	-	-	2
	Major Project	-	-	-	8

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	Concentration Electives (Any one/ one set)				**3**
	Digital Image Processing	2	-	-	2
	Digital Image Processing Lab	-	-	2	1
	Dot Net Programming	2	-	-	2
	Dot Net Programming Lab	-	-	2	1
	Advance Robotic Process Automation Design & Development	3	-	-	3
	Open Electives				**2**
CSS2651	Workplace Communication	1	-	-	1
BEH2851	Personal & Professional Excellence	1	-	-	1
	TOTAL				**33**

SUMMER INTERNSHIP

NINTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Science Courses					
	Pattern Recognition and Image Processing	3	-	-	3
	Neural Network and Fuzzy Logic	3	-	-	3
	Natural Language Processing	3	-	-	3
Laboratory Courses					
	Pattern Recognition and Image Processing Lab	-	-	2	1
	Neural Network and Fuzzy Logic Lab	-	-	2	1
	Hadoop Lab	-	-	4	2
Summer Internship					
	Summer Internship Evaluation	-	-	-	6

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Dissertation					
	Dissertation-I	-	-	-	5
Concentration Elective I (Any One)					
	Descriptive Analysis	3	-	-	3
	Optimization Techniques	3	-	-	3
Concentration Elective II (Any One Set)					
	Social Network Data Analytics	3	-	-	3
	Agent Based Intelligent Systems	3	-	-	3
TOTAL					**30**

TENTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Project-Dissertation-II	-	-	-	15
	TOTAL				**15**

Dual Degree Programme B.Tech + M.Tech (AIR) which was discontinued in year 2019 is revived with the same programme structure in the BoS held on July 19, 2020. Detailed programmes structure approved by the BoS is given below:

Programme Structure of B.Tech +M.Tech (Artificial Intelligence & Robotics)*

FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Engineering Mathematics-I	3	1	-	4
	Engineering Physics	2	1	-	3

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	Introduction to Computers & Programming in C	2	1	-	3
	Elements of Mechanical Engineering	3	-	-	3
	Engineering Physics Lab	-	-	2	1
	Programming in C Lab	-	-	2	1
	Elements of Mechanical Engineering Lab	-	-	2	1
	Open Electives				**9**
CSS2152	English-I	1	-	-	1
BEH2151	Understanding Self for Effectiveness	1	-	-	1
ENV2152	Environmental Studies	4	-	-	4
	Foreign Language-I	3	-	-	3
LAN2170	French for Technology-I				
LAN2152	German-I				
LAN2153	Spanish-I				
LAN2154	Russian-I				
LAN2155	Chinese-I				
LAN2156	Portuguese-I				
LAN2157	Korean-I				
LAN2158	Japanese-I				
LAN2159	Hindi-I **				
	TOTAL				**25**

** Hindi as Foreign Language for Foreign National Students

SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Engineering Mathematics-II	3	1	-	4
	Engineering Chemistry	2	-	-	2

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	Object Oriented Programming using C ++	2	1	-	3
	Engineering Mechanics	2	1	-	3
	Basics of Electrical & Electronics Engineering	2	1	-	3
	Engineering Chemistry Lab	-	-	2	1
	Object Oriented Programming using C ++ Lab	-	-	2	1
	Engineering Graphics Lab	-	-	4	2
	Basics of Electrical & Electronics Engineering Lab	-	-	2	1
	Open Electives				**5**
CSS2252	English-II	1	-	-	1
BEH2251	Problem Solving and Creative Thinking	1	-	-	1
	Foreign Language-II	3	-	-	3
LAN2270	French for Technology-II				
LAN2252	German-II				
LAN2253	Spanish-II				
LAN2254	Russian-II				
LAN2255	Chinese-II				
LAN2256	Portuguese-II				
LAN2257	Korean-II				
LAN2258	Japanese-II				
LAN2259	Hindi-II				
	TOTAL				**25**

THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Database Management Systems	3	1	-	4

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	Operating Systems	3	-	-	3
	Data Structures using C	3	1	-	4
	Digital Electronics	2	-	-	2
	Data Structures using C Lab	-	-	2	1
	Database Management System Lab	-	-	2	1
	UNIX Programming Lab	-	-	2	1
	Digital Electronics Lab	-	-	2	1
	Concentration Electives (Any one/ one set)				**3**
	E-Commerce & ERP	3	-	-	3
	Electronic Devices and Circuits	2	-	-	2
	Electronic Devices and Circuits Lab	-	-	2	1
	Statistics & Probability Concepts	3	-	-	3
	Open Electives				**4**
CSS2151	Effective Listening	1	-	-	1
BEH2351	Group Dynamics and Team Building	1	-	-	1
	Foreign Language-III	2	-	-	2
LAN2370	French for Technology-III				
LAN2352	German-III				
LAN2353	Spanish-III				
LAN2354	Russian-III				
LAN2355	Chinese-III				
LAN2356	Portuguese-III				
LAN2357	Korean-III				
LAN2358	Japanese-III				
LAN2359	Hindi-III				
	TOTAL				**24**

FOURTH SEMESTER

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Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Discrete Mathematics	3	-	-	3
	Artificial Intelligence	3	-	-	3
	Analysis & Design of Algorithm	3	-	-	3
	Data Communication & Computer Networks	3	-	-	3
	Artificial Intelligence Lab	-	-	2	1
	Data Communication & Computer Networks Lab	-	-	2	1
	Analysis & Design of Algorithm Lab	-	-	2	1
	Concentration Electives (Any one set)				**3**
	Communication Systems	2	-	-	2
	Communication Systems Lab	-	-	2	1
	Artificial Neural Network	2	-	-	2
	Artificial Neural Network Lab	-	-	2	1
	Web Designing Technologies	2	-	-	2
	Web Designing Technologies Lab	-	-	2	1
	Open Electives				**4**
CSS2251	Presentation Skills	1	-	-	1
BEH2451	Stress and Coping Strategies	1	-	-	1
	Foreign Language-IV	2	-	-	2
LAN2470	French for Technology -IV				
LAN2452	German-IV				
LAN2453	Spanish-IV				
LAN2454	Russian-IV				
LAN2455	Chinese-IV				
LAN2456	Portuguese-IV				
LAN2457	Korean-IV				
LAN2458	Japanese-IV				

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LAN2459	Hindi-IV				
	TOTAL				**22**

SUMMER INTERNSHIP

FIFTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Computer Architecture	3	-	-	3
	Java Programming	3	-	-	3
	Advance Data Structures & Algorithm	3	-	-	3
	Microprocessor	2	1	-	3
	Theory of Automata & Computation	3	-	-	3
	Java Programming Lab	-	-	2	1
	Python Programming Lab	-	-	2	1
	Advance Data Structures & Algorithm Lab	-	-	2	1
	Microprocessor Lab	-	-	2	1
	Summer Internship Evaluation-I	-	-	-	3
	Concentration Electives (Any one/ one set)				**3**
	Fuzzy Logic & Genetic Algorithm	3	-	-	3
	VHDL Programming	2	-	-	2
	VHDL Programming Lab	-	-	2	1
	Advanced Web Designing Technologies	2	-	-	2
	Advanced Web Designing Technologies Lab	-	-	2	1
	Open Electives				**4**
CSS2351	Reading & Comprehension	1	-	-	1
BEH2552	Personality, Nationalism and Human Values	1	-	-	1

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	Foreign Language-V	2	-	-	2
LAN2570	French for Technology-V				
LAN2552	German-V				
LAN2553	Spanish-V				
LAN2554	Russian-V				
LAN2555	Chinese-V				
LAN2556	Portuguese-V				
LAN2557	Korean-V				
LAN2558	Japanese-V				
LAN2559	Hindi-V				
	TOTAL				**29**

SIXTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Advanced Java Programming	3	-	-	3
	Advance Database Management System	3	-	-	3
	Digital Computer Organization	3	-	-	3
	Software Engineering	3	-	-	3
	Internet of Things & Wireless Sensor Networks	3	-	-	3
	Advanced Java Programming Lab	-	-	2	1
	Advance Database Management System Lab	-	-	2	1
	Software Engineering Lab	-	-	2	1
	Minor Project-I	-	-	-	2
	Concentration Electives (Any one/ one set)				**3**
	VLSI Design	2	-	-	2
	VLSI Design Lab	-	-	2	1

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	Open Source Technologies	2	-	-	2
	Open Source Technologies Lab	-	-	2	1
	Data Mining	3	-	-	3
	Open Electives				**4**
CSS2451	Corporate Communication	1	-	-	1
BEH2652	Interpersonal Communication	1	-	-	1
	Foreign Language-VI	2	-	-	2
LAN2670	French for Technology-VI				
LAN2652	German-VI				
LAN2653	Spanish-VI				
LAN2654	Russian-VI				
LAN2655	Chinese-VI				
LAN2656	Portuguese-VI				
LAN2657	Korean-VI				
LAN2658	Japanese-VI				
LAN2659	Hindi-VI				
	TOTAL				**27**

SUMMER INTERNSHIP

SEVENTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Computer Graphics	3	-	-	3
	Advanced Computer Networks	3	-	-	3
	Cryptography & Network Security	2	1	-	3
	System Programming & Compiler Construction	3	-	-	3
	Computer Graphics Lab	-	-	2	1
	Advanced Computer Networks Lab	-	-	2	1

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	MATLAB Programming	-	-	4	2
	Network Security Lab	-	-	2	1
	System Programming & Compiler Construction Lab	-	-	2	1
	Summer Internship Evaluation-II	-	-	-	3
	Minor Project-II	-	-	-	2
	Concentration Electives (Any one/one set)				**3**
	Mobile Computing	3	-	-	3
	Robotic Process Automation Design & Development	3	-	-	3
	Responsive Web Design	2	-	-	2
	Responsive Web Design Lab	-	-	2	1
	Open Electives				**4**
CSS2551	Employability Skills	1	-	-	1
BEH2751	Relationship Management	1	-	-	1
	Foreign Language-VII	2	-	-	2
LAN2770	French for Technology-VII				
LAN2752	German-VII				
LAN2753	Spanish-VII				
LAN2754	Russian-VII				
LAN2755	Chinese-VII				
LAN2756	Portuguese-VII				
LAN2757	Korean-VII				
LAN2758	Japanese-VII				
LAN2759	Hindi-VII				
	TOTAL				**30**

EIGHTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits

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	Fundamental of Robotics System & Robot Programming	3	-	-	3
	Advanced Control Systems & Drives for Robots	3	-	-	3
	Microprocessor and Interfacing	3	-	-	3
	Kinematics & Dynamics of Robots	3	-	-	3
	Advanced Applied Mathematics for Engineering	3	-	-	3
	Fundamental of Robotics System & Robot Programming Lab	-	-	2	1
	Advanced Control Systems & Drives for Robots Lab	-	-	2	1
	Microprocessor and Interfacing Lab	-	-	2	1
	Research Methodology & Technical Report Writing	2	-	-	2
	Major Project	-	-	-	8
	Concentration Electives (Any one/ one set)				**3**
	Digital Image Processing	2	-	-	2
	Digital Image Processing Lab	-	-	2	1
	Dot Net Programming	2	-	-	2
	Dot Net Programming Lab	-	-	2	1
	Advance Robotic Process Automation Design & Development	3	-	-	3
	Open Electives				**2**
CSS2651	Workplace Communication	1	-	-	1
BEH2851	Personal & Professional Excellence	1	-	-	1
	TOTAL				**33**

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NINTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits

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	Automation in Manufacturing Systems	3	-	-	3
	Robotic Sensors, Vision and Hardware Implementation	3	-	-	3
	Pattern Recognition & Image Processing	3	-	-	3
	Robotic Sensors, Vision and Hardware Implementation Lab	-	-	4	2
	Pattern Recognition & Image Processing Lab	-	-	2	1
	Summer Internship Evaluation-III	-	-	-	6
	Project-Dissertation-I	-	-	-	5
	Concentration Electives-I (Any One)				**3**
	Optimization Techniques	3	-	-	3
	CNC Machines & Adaptive Control	3	-	-	3
	Concentration Electives-II (Any one set)				**4**
	Neural Network and Fuzzy Logic	3	-	-	3
	Neural Network and Fuzzy Logic Lab	-	-	2	1
	Decision Making Systems	3	-	-	3
	Decision Making Systems Lab	-	-	2	1
	TOTAL				**30**

TENTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per week	Tutorial (T) Hours Per week	Practical (P) Hours Per week	Total Credits
	Project-Dissertation-II	-	-	-	15
	TOTAL				**15**

<u>Review of ongoing Programme MCA 3 Years (170 Credits) to MCA 2 Years (100 Credits)</u>

The revision of MCA Programme is proposed as All India Council for Technical Education (AICTE) has reduced MCA programme duration from 3 years to 2 years w.e.f from academic year 2020-21.

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Presently AIIT is offering 3-years MCA programme of 170 credits. It is now proposed to offer w.e.f. session 2020 – 2021, 2-years MCA programme of 100 credits.

The eligibility of the proposed programme is as follows

a) Passed BCA/B.Sc(CS)/ B.Sc(IT)/B.E. or B.Tech.(CSE/IT)/ B.Voc.(Software Development/IT) or an equivalent degree with having at least 50% marks in aggregate.

or

b) Passed B.Sc/ B.Com/ B.A with Mathematics at 10+2 level or at Graduation level with having at least 50% marks in aggregate, along with the students admitted with this eligibility will have to simultaneously undertake additional bridge course as prescribed by the University during the first year.

Following changes are proposed to existing MCA Programme

Ist Semester(Existing MCA Programme)		**Changes made**
Course Code	**Course Title and Credits**	
IFT4102 IFT4107	Computer Programming using C Language(2+0+1)	Merged and moved to bridge course with title and credits "Computer Fundamentals and Programming in C" (3+0+1). Also syllabus is revised.
IFT4108 IFT4111	Computer Fundamentals (2+0+1)	
IFT4106	Mathematical Foundation to Computer Science(3+0+0)	Removed as students with mathematical background will be enrolled in the programme.
IFT4109	Digital Electronics(3+0+0)	Removed and basic knowledge required is covered by first module of "Computer Fundamentals and Programming in C" in bridge course
IFT4110 IFT4112	Operating System(2+0+1)	Moved to bridge course with credits (3+0+1)
Value Added Courses		
CSS4151	Basics of Communication (1+0+0)	No changes
BEH4151	Self Development and Interpersonal skills(1+0+0)	
	Foreign Language-I	No changes

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2nd Semester(Existing MCA Programme)		Changes made
Course Code	**Course Title and Credits**	
IFT4210 IFT4211	Web Technologies(2+0+1)	Removed and essential topics are included in "Programming with .NET Framework" course of 3rd semester.
IFT4213 IFT4217	Data Structure using C++ Language(2+0+1)	Moved to bridge course with tile and credits "Data Structure" (3+0+1).
IFT4214 IFT4218	Database Management System(2+0+1)	Moved to bridge course with title and credits "Relational Database Management System" (3+0+1).
IFT4215 IFT4219	Object Oriented Programming with C++(2+0+1)	Removed as Object Oriented concepts are also covered in the course "Programming with Java".
IFT4216	Computer Organization & Architecture(3+0+0)	Removed and basic knowledge is covered under first module of "Computer Fundamentals and Programming in C Language".
Value Added Courses		
CSS4251	Corporate Communication	No changes
BEH4251	Behavioral Communication and Relationship Management	No changes
Foreign Language – II (As opted in 1st Semester)		No changes

3st Semester(Existing MCA Programme)		Changes made
Course Code	**Course Title and Credits**	
IFT4305 IFT4320	Data Communication & Computer Networks(3+0+1)	Moved to Ist semester of proposed curriculum.
IFT4310 IFT4316	Design & Analysis of Algorithm(3+1+1)	
IFT4312 IFT4317	Programming with Java(3+0+2)	

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IFT4313 IFT4318	Software Engineering(3+0+1)	Moved to Ist semester of proposed curriculum with credits (3+0+0). Lab is removed.
IFT4314 IFT4319	Computer Graphics & Multimedia Systems(3+0+1)	Moved to Ist semester of proposed curriculum.
IFT4315	Business Management(3+0+0)	Removed as it is not an essential course.
IFT4335	Summer Internship Evaluation-I/Minor Project(5)	Removed as new students would not have done Summer Internship.
Value Added Courses		
CSS4351	Interpersonal Communication(1+0+0)	No changes
BEH4351	Leading through Teams(1+0+0)	
Foreign Language-III(As opted in 1st Semester)		No changes

4th Sem(Existing MCA Programme)		**Changes made**
Course Code	**Course Title and Credits**	
IFT4415	Mobile Computing(3+0+0)	Moved to 2nd semester of proposed curriculum
IFT4417 IFT4420	Programming with C#.NET(3+1+2)	Merged with the 5th semester course "Web Development with ASP.NET" and introduced in the 3rd semester of proposed curriculum with title "Programming with .NET Framework" (4+0+2). Accordingly syllabus is revised.
IFT4418 IFT4421	Software Project Management(3+1+1)	Moved to 2nd semester of proposed curriculum with credits (3+0+1).
IFT4419 IFT4422	Artificial Intelligence(3+1+1)	Moved to 2nd semester of proposed curriculum with credits (3+0+1).
IFT4431	Term Paper(3)	Moved to 3rd semester of proposed curriculum.
Concentration Electives (Any One Set)		

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IFT4423 IFT4424	Android Programming Android Programming Lab (3+0+1)	"Python Programming" is excluded from the CEs and introduced as core course along with Machine Learning in the 4th semester of proposed curriculum with the title and credits "Machine Learning using Python" (3+0+2). Remaining two CEs are moved to 3rd semester of proposed curriculum.
IFT4425 IFT4426	Python Programming Python Programming Lab(3+0+1)	
IFT4427 IFT4428	Digital Image Processing Digital Image Processing Lab(3+0+1)	
Value Added Courses		
CSS4351	Interpersonal Communication(1+0+0)	No changes
BEH4351	Leading through Teams(1+0+0)	
Foreign Language-IV(As opted in 1st Semester)		No changes

5th Semester(Existing MCA Programme)		**Changes made**
Course Code	**Course Title and Credits**	
IFT4512 IFT4523	Data Warehousing & Data Mining (3+1+1)	Moved to 3rd semester of proposed curriculum with credits(3+0+1).
IFT4525 IFT4529	Web Development with ASP.NET(3+0+2)	Merged with the 4th semester course "Programming with C#.NET" and introduced in the 3rd semester of proposed curriculum with title "Programming with .NET Framework" (4+0+2). Accordingly syllabus is revised.
IFT4526	Network Security & Cryptography(3+1+0)	Moved to 3rd semester of proposed curriculum.
IFT4527 IFT4540	Soft Computing(3+1+1)	Moved to 3rd semester of proposed curriculum with credits (3+0+1).

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IFT4528	Cloud Computing(3+0+0)	Moved to 4rd semester of proposed curriculum.
IFT4535	Summer Internship Evaluation-II(5)	Proposed curriculum will have only one Summer Internship Evaluation in the 3rd semester.
IFT4545	Seminar	Moved to 2rd semester of proposed curriculum.
Concentration Electives (Any One Set)		
IFT4518	Distributed Operating System(4+0+0)	Distributed Operating System and Advance Database System are discontinued in the proposed curriculum Android Programming, Digital Image Processing and Big Date are offered as CEs in the 3rd semester of proposed curriculum.
IFT4541 IFT4542	Advance Database System Advance Database System Lab(3+0+1)	
IFT4543 IFT4544	Big Data Big Data Lab(3+0+1)	
Foreign Language-V(As opted in 1st Semester)		No changes

6th Semester (Existing MCA Programme)		**Changes made**
Course Code	**Course Title and Credits**	
IFT4637	Major Project/ Dissertation(30)	Major Project/ Dissertation is moved to 4th semester of revised curriculum with 15 credits.

Following were the discussions points

1. Dr. S.N.Sridhara, Director, ASET asked to make sure that the ratio of NTCC course should be maintained.
2. Mr. Anuj K. Singh makes sure that he CS and BS courses are included upto 3rd semester like other 2 year programmes.
3. External experts are asked to ensure that the credits and syllabus of merged courses revised accordingly.

The points raised during the discussion were verified and revised curriculum (Appendix-A) is unanimously accepted by all the members present.

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Review of ongoing Dual Degree Programme BCA+MCA 5 Years (280 Credits) to BCA+MCA 5 Years (260 Credits).

Due to revision of MCA curriculum same revision in BCA+MCA curriculum are proposed.

First Six semesters remain same and last four semesters are revised on the same guidelines as followed in MCA programme.

In addition to that BCA+MCA Programme includes two additional courses

(a) Summer Internship Evaluation-III (5 Credits) in 7th semester because students enrolled under this programme would have undergone Summer Internship in the summer break after 6th semester.

(b) Relational Database Management System(3+1+1) in 8th semester

Total Credits of the revised programme become 260.

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Programme Structure of MCA*-2 Years

BRIDGE COURSE

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Core Courses					
	Computer Fundamentals and Programming in C	3	-	-	3
	Data Structure	3	-	-	3
	Operating System	3	-	-	3
	Relational Database Management System	3	-	-	3
Laboratory Courses					
	Programming in C Lab	-	-	2	1
	Data Structure Lab	-	-	2	1
	Operating System Lab	-	-	2	1
	Relational Database Management System Lab	-	-	2	1
TOTAL					**16**

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FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practi-cal (P) Hours Per Week	Total Credits
Engineering Sciences Courses					
	Data Communication & Computer Networks	3	-	-	3
	Design & Analysis of Algo-rithm	3	1	-	4
	Software Engineering	3	-	-	3
	Computer Graphics & Mul-timedia Systems	3	-	-	3
Laboratory Courses					
	Data Communication & Computer Networks Lab	-	-	2	1
	Design & Analysis of Algo-rithm Lab	-	-	2	1
	Computer Graphics & Mul-timedia Systems Lab	-	-	2	1
Value Added Courses					
CSS4151	Basics of Communication	1	-	-	1
BE-H4151	Self Development and Inter-personal skills	1	-	-	1
Foreign Language – I (Any One)					

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LAN4151 LAN4152 LAN4153 LAN4154 LAN4155 LAN4156 LAN4157 LAN4158 LAN4159	French-I German-I Spanish-I Russian-I Chinese-I Portuguese-I Korean-I Japanese-I Hindi-I **	2	-	-	2
TOTAL					**20**

**** Hindi as Foreign Language for Foreign National Students**

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SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Sciences Courses					
	Mobile Computing	3	0	-	3
	Programming with Java	3	0	-	3
	Software Project Management	3	0	-	3
	Artificial Intelligence	3	0	-	3
Laboratory Courses					
	Programming with Java Lab	-	-	4	2
	Software Project Management Lab	-	-	2	1
	Artificial Intelligence Lab	-	-	2	1
Seminar					
	Seminar	-	-	-	3
Value Added Courses					
CSS4251	Corporate Communication	1	-	-	1
BEH4251	Behavioral Communication and Relationship Management	1	-	-	1
Foreign Language – II (As opted in 1st Semester)					
LAN4251 LAN4252 LAN4253 LAN4254 LAN4255 LAN4256 LAN4257 LAN4258 LAN4259	French-II German-II Spanish-II Russian-II Chinese-II Portuguese-II Korean-II Japanese-II Hindi-II	2	-	-	2
	TOTAL				**23**

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THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Sciences Courses					
	Data Warehousing & Data Mining	3	0	-	3
	Programming with .NET Framework	4	0	-	4
	Network Security & Cryptog-raphy	3	1	-	4
	Soft Computing	3	-	-	3
Laboratory Courses					
	Data Warehousing & Data Mining Lab	-	-	2	1
	Programming with .NET Framework	-	-	4	2
	Soft Computing Lab	-	-	2	1
Summer Internship					
	Summer Internship Evaluation	-	-	-	5
Term Paper					
	Term Paper	-	-	-	3
Concentration Electives (Any One Set)					
	Android Programming	3	-	-	3
	Android Programming Lab	-	-	2	1
	Digital Image Processing	3	-	-	3
	Digital Image Processing Lab	-	-	2	1
	Big Data	3	-	-	3
	Big Data Lab	-	-	2	1

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Value Added Courses					
CSS4351	Interpersonal Communication	1	-	-	1
BE-H4351	Leading through Teams	1	-	-	1
Foreign Language – III (As opted in 1st Semester)					
LAN4351 LAN4352 LAN4353 LAN4354 LAN4355 LAN4356 LAN4357 LAN4358 LAN4359	French-III German-III Spanish-III Russian-III Chinese-III Portuguese-III Korean-III Japanese-III Hindi-III	2	-	-	2
TOTAL					**34**

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FOURTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Major Project					
	Major Project/ Dissertation	-	-	-	15
	Machine Learning using Python	3	-	-	3
	Cloud Computing	3	-	-	3
Laboratory Courses					
	Machine Learning using Python Lab	-	-	4	2
	TOTAL				**23**

Programme Structure of BCA+MCA* - 5years

FIRST SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practi-cal (P) Hours Per Week	Total Credits
IFT6101	Mathematics-I	2	1	-	3
IFT6103	Computer Fundamentals	3	-	-	3
IFT6104	Digital Electronics	3	-	-	3
IFT6108	Computer Programming with C Lan-guage	3	-	-	3
IFT6109	Computer Fundamentals Lab	-	-	2	1
IFT6110	Computer Programming with C Lan-guage Lab	-	-	2	1

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					9
EN-V2152	Environmental Studies	4	-	-	4
CSS2152	English-I	1	-	-	1
BE-H2151	Understanding Self for Effectives	1	-	-	1
	Foreign Language – I*	3	-	-	3
LAN2151	French-I				
LAN2152	German-I				
LAN2153	Spanish-I				
LAN2154	Russian-I				
LAN2155	Chinese-I				
LAN2156	Portuguese-I				
LAN2157	Korean-I				
LAN2158	Japanese-I				
LAN2159	Hindi-I **				
	TOTAL				**23**

** Hindi as Foreign Language for Foreign National Students

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SECOND SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
IFT6201	Mathematics-II	2	1	-	3
IFT6202	Data & File Structures using C	3	-	-	3
IFT6210	Web Technologies	3	-	-	3
IFT6211	Database Management System	3	-	-	3
IFT6212	Computer Organization & Architecture	3	-	-	3
IFT6213	Web Technologies Lab	-	-	2	1
IFT6208	Data & File Structures using C Lab	-	-	2	1
IFT6214	Database Management System Lab	-	-	2	1
IFT6215	Enterprise Resource Planning	3	-	-	3
					5
CSS2252	English-II	1	-	-	1
BEH2251	Problem Solving & Creative Thinking	1	-	-	1
	Foreign Language-II	3	-	-	3
LAN2251	French-II				
LAN2252	German-II				
LAN2253	Spanish-II				
LAN2254	Russian-II				
LAN2255	Chinese-II				
LAN2256	Portuguese-II				
LAN2257	Korean-II				
LAN2258	Japanese-II				
LAN2259	Hindi-II				
	TOTAL				**26**

SUMMER INTERNSHIP-I

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THIRD SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
IFT6302	Object Oriented Programming with C++	3	-	-	3
IFT6304	Operating System	3	-	-	3
IFT6311	Discrete Mathematical Structure with Application to CS	3	-	-	3
IFT6312	Management Information System	3	-	-	3
IFT6313	Fundamentals of Software Engineering	3	-	-	3
IFT6306	Object Oriented Programming with C++ Lab	-	-	2	1
IFT6314	Operating System Lab	-	-	2	1
IFT6315	Fuzzy Logic	3	-	-	3
IFT6335	Summer Internship Evaluation-I	-	-	-	3
					4
CSS2151	Effective Listening*	1	-	-	1
BE-H2351	Group Dynamics & Team Building*	1	-	-	1
	Foreign Language-III	2	-	-	2
LAN2351	French-III				
LAN2352	German-III				
LAN2353	Spanish-III				
LAN2354	Russian-III				
LAN2355	Chinese-III				
LAN2356	Portuguese-III				

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LAN2357	Korean-III				
LAN2358	Japanese-III				
LAN2359	Hindi-III				
	TOTAL				**27**

FOURTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practi-cal (P) Hours Per Week	Total Credits
IFT6404	Basics of Algorithm	3	-	-	3
IFT6411	Computer Network	3	-	-	3
IFT6412	Principles of Management	3	-	-	3
IFT6415	Multimedia & Its Applications	3	1	-	4
IFT6413	Computer Network Lab	-	-	2	1
IFT6414	Basics of Algorithm Lab	-	-	2	1
IFT6431	Term Paper	-	-	-	3
					4
CSS2251	Presentation Skills	1	-	-	1
BEH2451	Stress & Coping Strategies	1	-	-	1
	Foreign Language-IV	2	-	-	2
LAN2451	French-IV				
LAN2452	German-IV				
LAN2453	Spanish-IV				
LAN2454	Russian-IV				
LAN2455	Chinese-IV				

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LAN2456	Portuguese-IV				
LAN2457	Korean-IV				
LAN2458	Japanese-IV				
LAN2459	Hindi-IV				
	TOTAL				**22**

SUMMER INTERNSHIP-II

FIFTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
IFT6501	Core Java Programming	3	-	-	3
IFT6512	Accounting & Financial Management	3	-	-	3
IFT6513	Basics of Computer Graphics	3	-	-	3
IFT6516	Statistics and Probability Theory	3	-	-	3
IFT6515	System Programming	3	1	-	4
IFT6505	Core Java Programming Lab	-	-	2	1
IFT6514	Basics of Computer Graphics Lab	-	-	2	1
IFT6535	Summer Internship Evaluation-II	-	-	-	3
CSS2351	Reading and Comprehension*	1	-	-	1
BEH2551	Individual Society & Nations*	1	-	-	1
	Foreign Language-V	2	-	-	2
LAN2551	French-V				
LAN2552	German-V				
LAN2553	Spanish-V				
LAN2554	Russian-V				

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LAN2555	Chinese-V				
LAN2556	Portuguese-V				
LAN2557	Korean-V				
LAN2558	Japanese-V				
LAN2559	Hindi-V				
	TOTAL				**25**

SIXTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
IFT6609	Computer Oriented Statistical & Optimization Methods	3	-	-	3
IFT6610	High Performance Computing	3	-	-	3
IFT6611	Introduction to Open Source Technologies (PHP, MySQL)	3	-	-	3
IFT6612	E-Commerce	3	-	-	3
IFT6614	Internet of Things	3	1	-	4
IFT6613	Introduction to Open Source Technologies (PHP, MySQL) Lab	-	-	2	1
IFT6637	Major Project	-	-	-	6
	Open Electives *				**4***
CSS2451	Corporate Communication*	1	-	-	1
BEH2651	Interpersonal Communication & Relationship Management*	1	-	-	1
	Foreign Language-VI	2	-	-	2
LAN2651	French-VI				
LAN2652	German-VI				
LAN2653	Spanish-VI				
LAN2654	Russian-VI				

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LAN2655	Chinese-VI				
LAN2656	Portuguese-VI				
LAN2657	Korean-VI				
LAN2658	Japanese-VI				
LAN2659	Hindi-VI				
	TOTAL				**27**

SUMMER INTERNSHIP-III

SEVENTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Sciences Courses					
	Data Communication & Computer Networks	3	-	-	3
	Design & Analysis of Algorithm	3	1	-	4
	Software Engineering	3	-	-	3
	Computer Graphics & Multimedia Systems	3	-	-	3
Laboratory Courses					
	Data Communication & Computer Networks Lab	-	-	2	1
	Design & Analysis of Algorithm Lab	-	-	2	1
	Computer Graphics & Multimedia Systems Lab	-	-	2	1
	Summer Internship Evaluation-III	-	-	-	5
Value Added Courses					

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CSS 2551	Employability Skills	1	-	-	1
BEH4151	Self Development & Interpersonal Skills	1	-	-	1
Foreign Language – VII (As opted in 1st Semester)					
LAN4351 LAN4352 LAN4353 LAN4354 LAN4355 LAN4356 LAN4357 LAN4358 LAN4359	French-VII German-VII Spanish-VII Russian-VII Chinese-VII Portuguese-VII Korean-VII Japanese-VII Hindi-VII	2	-	-	2
TOTAL					**25**

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EIGHTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Sciences Courses					
	Mobile Computing	3	0	-	3
	Programming with Java	3	0	-	3
	Software Project Management	3	0	-	3
	Artificial Intelligence	3	0	-	3
	Relational Database Management System	3	1	0	4
Laboratory Courses					
	Programming with Java Lab	-	-	4	2
	Software Project Management Lab	-	-	2	1
	Artificial Intelligence Lab	-	-	2	1
	Relational Database Management System Lab	-	-	2	1
Seminar					
	Seminar	-	-	-	3
Value Added Courses					
CSS 2651	Workplace Communication	1	-	-	1
BEH4451	Professional Excellence	1	-	-	1
Foreign Language – VIII (As opted in 1st Semester)					

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LAN4451 LAN4452 LAN4453 LAN4454 LAN4455 LAN4456 LAN4457 LAN4458 LAN4459	French-VIII German-VIII Spanish-VIII Russian-VIII Chinese-VIII Portuguese-VIII Korean-VIII Japanese-VIII Hindi- VIII	2	-	-	2
	TOTAL				**28**

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NINTH SEMESTER

Course Code	Course Title	Lecture (L) Hours	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Engineering Sciences Courses					
	Data Warehousing & Data Mining	3	0	-	3
	Programming with .NET Framework	4	0	-	4
	Network Security & Cryptography	3	1	-	4
	Soft Computing	3	-	-	3
Laboratory Courses					
	Data Warehousing & Data Mining Lab	-	-	2	1
	Programming with .NET Framework	-	-	4	2
	Soft Computing Lab	-	-	2	1
Summer Internship					
	Summer Internship Evaluation-IV	-	-	-	5
Term Paper					
	Term Paper	-	-	-	3
Concentration Electives (Any One Set)					
	Android Programming	3	-	-	3
	Android Programming Lab	-	-	2	1
	Digital Image Processing	3	-	-	3
	Digital Image Processing Lab	-	-	2	1
	Big Data	3	-	-	3
	Big Data Lab	-	-	2	1
Value Added Courses					

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CSS4351	Interpersonal Communication	1	-	-	1
BEH4351	Leading through Teams	1	-	-	1
Foreign Language – IX (As opted in 1st Semester)					
LAN4551 LAN4552 LAN4553 LAN4554 LAN4555 LAN4556 LAN4557 LAN4558 LAN4559	French-IX German-IX Spanish-IX Russian-IX Chinese-IX Portuguese-IX Korean- IX Japanese- IX Hindi- IX	2	-	-	2
TOTAL					**34**

TENTH SEMESTER

Course Code	Course Title	Lecture (L) Hours Per Week	Tutorial (T) Hours Per Week	Practical (P) Hours Per Week	Total Credits
Major Project					
	Major Project/ Dissertation	-	-	-	15
	Machine Learning using Python	3	-	-	3
	Cloud Computing	3	-	-	3
Laboratory Courses					
	Machine Learning using Python Lab	-	-	4	2
	TOTAL				**23**

***All the programme structures are presented for assigning codes.**

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