NEW HORIZON
COLLEGE OF ENGINEERING
Autonomous College Permanently Affiliated to VTU, Approved by AICTE & UGC
Accredited by NAAC with 'A' Grade.

Department of Computer Science and Engineering

Academic Year 2018-19

M.Tech in Computer Science and Engineering

Third and Fourth Semesters
Scheme and Syllabus

NEW HORIZON COLLEGE OF ENGINEERING
M.TECH COMPUTER SCIENCE AND ENGINEERING
CREDIT SCHEME FOR THIRD SEMESTER

THIRD SEMESTER-COMPUTER SCIENCE AND ENGINEERING												
S.No	**Course code**	**course**	**BOS**	**Credit distribution**				**Overall credits**	**Contact Hours**	**Marks**		
				L	**P**	**T**	**S**			**CIE**	**SEE**	**TOTAL**
1	SCS31x	SPECIALIZATION ELECTIVE	CSE	4	0	0	1	5	4	50	50	100
2	SCS32	INTERNSHIP	CSE	0	2	0	0	2	-	50	50	100
3	SCS33	SEMINAR	CSE	0	0	0	2	2	-	50	50	100
4	SCS34	PROJECT PHASE-1	CSE	0	16	0	0	16	-	50	50	100
Total								25	4	200	200	400

Specialization Elective	
Course code	**course**
SCS311	INTERNET OF THINGS
SCS312	MOBILE APPLICATION DEVELOPMENT
SCS313	COMPUTER SYSTEMS-PERFORMANCE ANALYSIS
SCS314	NATURAL LANGUAGE PROCESSING

NEW HORIZON COLLEGE OF ENGINEERING
M.TECH COMPUTER SCIENCE AND ENGINEERING
CREDIT SCHEME FOR FOURTH SEMESTER

FOURTH SEMESTER-COMPUTER SCIENCE AND ENGINEERING												
S.No	**Course code**	**course**	**BOS**	**Credit distribution**				**Overall credits**	**Contact Hours**	**Marks**		
				L	**P**	**T**	**S**			**CIE**	**SEE**	**TOTAL**
1	SCS41x	Specialization Elective	CSE	4	0	0	1	5	4	50	50	100
2	SCS42	Internship	CSE	0	2	0	0	2	-	50	50	100
3	SCS43	Seminar	CSE	0	0	0	2	2	-	50	50	100
4	SCS44	Project Phase-2	CSE	0	16	0	0	16	-	50	50	100
Total								25	4	200	200	400

Specialization Elective	
Course code	**course**
SCS411	AGILE TECHNOLOGIES
SCS412	WEB INTELLEGENCE
SCS413	ADVANCES IN COMPUTATIONAL SECURITY
SCS414	HIGH PERFORMANCE COMPUTING

SEMESTER 3

INTERNET OF THINGS

Course Code	:SCS311	Credits : 4
L:P:T:S	: 4:0:0:1	CIE Marks: 50
Exam Hours	: 3 hrs	SEE Marks: 50

Course Outcomes: At the end of the Course, the Student will be able to:

1) To understand the basics of Internet of Things
2) Analyze and Development of Prototyping in IoT
3) Formulate Various IOT protocols and its application
4) Design of IOT Protocols
5) Developing Web of Things and its Architecture
6) Apply various techniques of IOT to Real World Application.

Module 1

INTRODUCTION : The Internet of Things:TheFlavour of IoT,The "Internet" of "Things", The Technology of IOT, Enhanced Objects, Who is making IOT?, Design Principles for connected devices:Calm ad Ambient Technology, Magic as Metaphor, Privacy, Web Thinking for connected devices, Affordances **9 Hrs**

Module 2

PROTOTYPING :Thinking about Prototyping:Sketching,Familiarity, Costs v/s Ease of Prototyping, Prototypes and Production ,open source and closed source, Electronics, Embedded Computing Basics, Arduino, RespBerry Pi, Beaglebone Black,Electric Imp, Other Platforms, Preparation, Sketch Iterate & Explore, Non Digital Methods **8 Hrs**

Module 3

IOT PROTOCOLS: Protocol Standardization for IOT ,Efforts , M2M and WSN Protocols, SCADA and RFID Protocols, Issues with IOT Standardization ,Unified Data Standards, Protocols , IEEE 802.15.4 , BACNet Protocol ,Modbus ,KNX , Zigbee Architecture, Network layer – APS layer – Security **9 Hrs**

Module 4

WEB OF THINGS : Web of Things versus Internet of Things – Two Pillars of the Web ,Architecture Standardization for WoT,Platform Middleware for WoT ,Unified Multitier WoT Architecture ,WoT Portals and Business Intelligence. Cloud of Things: Grid/SOA and Cloud Computing ,Cloud Middleware ,Cloud Standards ,Cloud Providers and Systems ,Mobile Cloud Computing ,The Cloud of Things Architecture **9 Hrs**

Module 5

APPLICATIONS :The Role of the Internet of Things for Increased Autonomy and Agility in Collaborative Production Environments - Resource Management in the Internet of Things:

Clustering, Synchronization and Software Agents. Applications , Smart Grid ,Electrical Vehicle Charging **9 Hrs**

TEXT BOOKS:

1. "Designing the Internet of Things", Adrian McEwen,Hakim Cassimally,John Wiley &Sons ,1st Edition 2014
2. "Architecting the Internet of Things",Dieter Uckelmann; Mark Harrison; Florian Michahelles-(Eds.) – Springer – 2011
3. "The Internet of Things – Key applications and Protocols",Olivier Hersent, David Boswarthick, Omar Elloumi, , Wiley, 2012

REFERENCE BOOKS:

1. "The Internet of Things in the Cloud: A Middleware Perspective",Honbo Zhou – CRC Press – 2012
2. "Networks, Crowds, and Markets: Reasoning About a Highly Connected World", David Easley and Jon Kleinberg, Cambridge University Press - 2010
3. "The Internet of Things: Applications to the Smart Grid and Building Automation", Olivier Hersent, Omar Elloumi and David Boswarthick - Wiley -2012

SEMESTER 4

WEB INTELLEGENCE

Course Code	: SCS412	Credits	: 04
L: P: T: S	: 4:0:0:1	CIE Marks	: 50
Exam Hours	: 3	SEE Marks	: 50

Course Outcomes: At the end of the Course, the Student will be able to

1) Understand different issues and approaches related to web Intelligence
2) Gain the knowledge of fundamental concepts on knowledge representation and Ontological Engineering.
3) Apply different data mining techniques on big data
4) Learn various web mining techniques with applications like Web usage Mining.
5) Understand different web content mining and web structure mining techniques
6) Understand the application of Web Intelligence on the Social Web

Module 1

Introduction to Web Intelligence:What is Web intelligence,Benefits of Intelligent Web,Ingredients of Web Intelligence,Topics of Web Intelligence,Related Technologies,Information Retrieval,Document representation, Retrieval Models, Evaluation of Retrieval Performance **8 Hrs**

Module 2

Semantic Web: The Layered-Language Model, Metadata and Ontologies, Ontology Languages for the Web Data Mining Techniques:Classification and Association, Clustering **9 Hrs**

Module 3

Web Usage Mining: Web-Log Processing, Analyzing Web Logs, Applications of Web Usage Mining- Clustering of Web Users, Classification Modeling of Web Users, Association Mining of Web Usages, Sequence-Pattern Analysis of Web Logs **9 Hrs**

Module 4

Web Content Mining:Web Crawlers, Search engines, Personalization of Web Content, Multimedia Information Retrieval **9 Hrs**

Module 5

Web Structure Mining: Modeling Web Topology- PageRank Algorithm, Hyperlink-Induced Topic Search (HITS), Random Walks on the Web, Social Networks **9 Hrs**

Text Book(s):

1. Akerkar, R. & Lingras, P. (2008). Building an Intelligent Web: Theory and Practice. Jones and Bartlett Publishers, Sudbury, Massachusetts.
2. Data Mining Concepts &Techniques –by Jaiwei Han ,Micheline Kamber,Jian Pei 3rd Edition,MK publisher.

References:

1. Juan D.Vel´asquez and Lakhmi C. Jain (Eds.): Advanced Techniques in Web Intelligence – 1, Springer, Sep-2010.
2. Ning Zhong: Web Intelligence Research and Development, Springer,2001.
3. Richi Nayak, Nikhi Ichalkaranje, Lakhmi C. Jain: Evolution of the Web in Artificial Intelligence Environments,Springer,2008.