Excel Engineering College

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Department of Computer Science and Engineering

1.1.1 Curricula developed and implemented have relevance to the local, national, regional and global developmental needs which are reflected in Programme Outcomes (POs), Programme Specific Outcomes (PSOs) and Course Outcomes (COs) of the various Programmes offered by the Institution:

	Classification / Mapping of Course with their societal needs				
Course code and name		**Local needs**	**Regional Needs**	**National Needs**	**Global Needs**
	M.E CSE Regulation 2022 (Autonomous)				
	Semester-I				
	Theory Courses				
22PMA103	Applied Probability and Statistics			✓	✓
22PCS101	Data Visualization Techniques	✓	✓	✓	✓
22PCS102	Natural Language Processing	✓	✓	✓	✓
22PCS103	Advanced Data Structures and Algorithms	✓	✓	✓	✓
	Practical Course				
22PCS104	Advanced Data Structures Laboratory			✓	✓
	Semester-II				
	Theory Courses				
22PCS201	Artificial Intelligence and Machine Learning Techniques	✓	✓	✓	✓
22PCS202	Internet of Things	✓	✓	✓	✓
22PCS203	Advanced Cloud Computing Technologies	✓	✓	✓	✓
22PCS204	Big Data Analytics	✓	✓	✓	✓
	Practical Course				
22PCS205	Data Analytics Laboratory		✓	✓	✓
	Employability Enhancement Course				
22PCS206	Technical Seminar and Internship		✓	✓	✓
	Professional Elective				

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22PCSE01	Advanced Computer Architecture		✓	✓	✓
22PCSE02	Advanced Database Technology	✓	✓	✓	✓
22PCSE03	Web Engineering	✓	✓	✓	✓
22PCSE04	Real time systems		✓	✓	✓
22PCSE05	Image Processing and Analysis	✓	✓	✓	✓
22PCSE11	Soft Computing		✓	✓	✓
22PCSE12	Information Retrieval Techniques			✓	✓
22PCSE13	Data Warehousing and Data Mining			✓	✓
22PCSE14	Parallel Programming Paradigms		✓	✓	✓
22PCSE15	Recommender System		✓	✓	✓
22PCSE21	Software Architectures And Design		✓	✓	✓
22PCSE22	Ethical Hacking	✓	✓	✓	✓
22PCSE23	Data Encryption and Compression	✓	✓	✓	✓
22PCSE24	Intellectual Property Rights		✓	✓	✓
22PCSE25	Data Preparation and Analysis			✓	✓
22PCSE31	Performance Analysis of Computer Systems			✓	✓
22PCSE32	Service Oriented Architecture and Design	✓	✓	✓	✓
22PCSE33	Computer Vision		✓	✓	✓
22PCSE34	Blockchain Technology	✓	✓	✓	✓
22PCSE35	Software Quality Assurance and Testing	✓	✓	✓	✓
	Semester-III				

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	Theory Courses				
20PEE301	Research Methodology and Intellectual Property Rights	✓	✓	✓	✓
	Employability Enhancement Course				
20PCS301	Project Work Phase – I			✓	✓
	Semester-IV				
	Employability Enhancement Course				
20PCS401	Project Work Phase – II		✓	✓	✓
	Professional Elective				
20PCSE41	Formal models of software Systems	✓	✓	✓	✓
20PCSE42	Embedded Software Development	✓	✓	✓	✓
20PCSE43	Machine Learning Techniques	✓	✓	✓	✓
20PCSE44	Bio-inspired Computing		✓	✓	✓
20PCSE45	High-speed networks	✓	✓	✓	✓
20PCSE51	Data Visualization Techniques			✓	✓
20PCSE52	Reconfigurable Computing	✓	✓	✓	✓
20PCSE53	Mobile Application Development			✓	✓
20PCSE54	Bio Informatics	✓	✓	✓	✓
20PCSE55	Information Storage Management			✓	✓

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EXCEL ENGINEERING COLLEGE

DEPARTMENT OF CSE
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	Classification / Mapping of Course with their societal needs				
Course code and name		Local Needs	Regional Needs	National Needs	Global Needs
	B.E CSE Regulation 2020				
I SEM					
Theory Course(s)					
20MA103	Mathematics – I for Computing Sciences		✓	✓	✓
20CS101	Computer Hardware and Networking	✓	✓	✓	✓
Theory with Practical Course(s)					
20ENEXX	Language Elective–I*		✓	✓	✓
20PH101	Physics for Computing Sciences		✓	✓	✓
20CS102	Problem Solving using Python	✓	✓	✓	✓
Practical Course(s)					
20CS103	Computer Practices Laboratory	✓	✓	✓	✓
Mandatory Course					
20MC101	Induction Programme		✓	✓	✓
*Language Electives–I					
20ENE01	Communicative English		✓	✓	✓
20ENE02	Advanced Communicative English		✓	✓	✓
II SEM					
Theory Course(s)					
20MA203	Mathematics – II for Computing Sciences		✓	✓	✓
20CS202	Programming and Data Structures	✓	✓	✓	✓
Theory with Practical Course(s)					
20ENEXX	Language Elective–II*		✓	✓	✓
20CH201	Chemistry for Computing Sciences		✓	✓	✓
20ME203	Engineering Graphics	✓	✓	✓	✓
Practical Course(s)					

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20CS203	Programming and Data Structures Laboratory	✓	✓	✓	✓
Mandatory Course					
20MC202	Interpersonal Skills		✓	✓	✓
***Language Electives–II**					
20ENE02	Advanced Communicative English		✓	✓	✓
20ENE03	Hindi		✓	✓	✓
20ENE04	French		✓	✓	✓
20ENE05	German		✓	✓	✓
III SEM					
Theory Course(s)					
20MA303	Discrete Mathematics and Graph Theory		✓	✓	✓
20CS301	Design and Analysis of Algorithms	✓	✓	✓	✓
20CS302	Object Oriented Programming	✓	✓	✓	✓
20CS303	Computer Architecture and Organization	✓	✓	✓	✓
Theory with Practical Course(s)					
20EC306	Digital Logics and Microprocessor		✓	✓	✓
20CS304	Operating Systems	✓	✓	✓	✓
Practical Course(s)					
20CS305	Object Oriented Programming Laboratory	✓	✓	✓	✓
Mandatory Course					
20MC301	Environmental Sciences		✓	✓	✓
IV SEMESTER					
Theory Course(s)					
20MA403	Probability and Statistical Methods		✓	✓	✓
20CS401	Formal Language and Automata Theory		✓	✓	✓
20CS402	Software Engineering	✓	✓	✓	✓
20CS403	Data Communication and Computer Networks	✓	✓	✓	✓

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Theory with Practical Course(s)					
20CS404	Database Management Systems	✓	✓	✓	✓
20CS405	Computer Graphics and Multimedia	✓	✓	✓	✓
Practical Course(s)					
20CS406	Data Communication and Computer Networks Laboratory	✓	✓	✓	✓
Mandatory Course					
20MC401	Soft Skills	✓	✓	✓	✓
	V SEMESTER				
Theory Course(s)					
20CS501	Foundations of Artificial Intelligence	✓	✓	✓	✓
20CS502	Compiler Design	✓	✓	✓	✓
	Theory with Practical Course(s)				
20CS503	Object Oriented Analysis and Design	✓	✓	✓	✓
20CS504	Cloud Computing Services	✓	✓	✓	✓
	Practical Course(s)				
20CS505	Compiler Design Laboratory	✓	✓	✓	✓
	VI SEMESTER				
	Theory Course(s)				
20CS601	Machine Learning Techniques		✓	✓	✓
20CS602	Professional Ethics and Human Values		✓	✓	✓
20CS603	Data Analytics	✓	✓	✓	✓

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	Theory with Practical Course(s)				
20CS604	Web Technology		✓	✓	✓
	Practical Course(s)				
20CS605	Machine Learning Laboratory	✓	✓	✓	✓
20CS606	Mini project		✓	✓	✓
20CS607	Internship		✓	✓	✓
	Professional Electives(PE)				
20CSE01	Deep Learning Techniques	✓	✓	✓	✓
20CSE02	Neural Networks and Fuzzy Logic	✓	✓	✓	✓
20CSE03	Robotics and Intelligent Systems	✓	✓	✓	✓
20CSE04	Business Intelligence		✓	✓	✓
20CSE05	Computer Vision and Applications		✓	✓	✓
20CSE06	Optimization Techniques	✓	✓	✓	✓
20CSE07	Computational Intelligence	✓	✓	✓	✓
20CSE08	Augmented Reality & Virtual Reality	✓	✓	✓	✓
20CSE09	Natural Language Processing		✓	✓	✓
20CSE10	Social Network Analysis		✓	✓	✓
20CSE21	Cyber Law and Ethics	✓	✓	✓	✓
20CSE22	Cyber Forensics	✓	✓	✓	✓
20CSE23	Ethical Hacking Fundamentals	✓	✓	✓	✓
20CSE24	Secure Cloud Computing		✓	✓	✓

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20CSE25	Information Security		✓	✓	✓
	Open Electives(OE)				
20CSO01	Big data Tools & Analytics	✓	✓	✓	✓
20CSO02	IoT Architecture and Protocols	✓	✓	✓	✓
20CSO03	Programming in C	✓	✓	✓	✓
20CSO04	GPU Architecture and Programming		✓	✓	✓
20CSO05	Software Project Management	✓	✓	✓	✓
20CSO06	Foundations of Blockchain Technology		✓	✓	✓
	VII SEMESTER				
	THEORY				
MG8591	Principles of Management		✓	✓	✓
CS8792	Cryptography and Network Security	✓	✓	✓	✓
CS8791	Cloud Computing		✓	✓	✓
	PRACTICALS				
CS8711	Cloud Computing Laboratory	✓	✓	✓	✓
IT8761	Security Laboratory	✓	✓	✓	✓
	VIII SEMESTER				
CS8811	Project Work		✓	✓	✓
	Professional Electives(PE)				
CS8091	Big Data Analytics		✓	✓	✓
CS8082	Machine Learning Techniques		✓	✓	✓

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CS8092	Computer Graphics and Multimedia		✓	✓	✓
IT8075	Software Project Management	✓	✓	✓	✓
CS8081	Internet of Things	✓	✓	✓	✓
IT8074	Service Oriented Architecture	✓	✓	✓	✓
GE8077	Total Quality Management		✓	✓	✓
CS8083	Multi-core Architectures and Programming		✓	✓	✓
CS8079	Human Computer Interaction		✓	✓	✓
CS8073	C# and .Net Programming	✓	✓	✓	✓
CS8088	Wireless Adhoc and Sensor Networks		✓	✓	✓
CS8071	Advanced Topics on Databases	✓	✓	✓	✓
GE8072	Foundation Skills in Integrated Product Development		✓	✓	✓
GE8074	Human Rights		✓	✓	✓
GE8071	Disaster Management		✓	✓	✓
EC8093	Digital Image Processing		✓	✓	✓
CS8085	Social Network Analysis		✓	✓	✓
IT8073	Information Security	✓	✓	✓	✓
CS8087	Software Defined Networks		✓	✓	✓
CS8074	Cyber Forensics		✓	✓	✓
CS8086	Soft Computing		✓	✓	✓
GE8076	Professional Ethics in Engineering		✓	✓	✓
CS8080	Information Retrieval Techniques	✓	✓	✓	✓

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CS8078	Green Computing		✓	✓	✓
CS8076	GPU Architecture and Programming	✓	✓	✓	✓
CS8084	Natural Language Processing		✓	✓	✓
CS8001	Parallel Algorithms	✓	✓	✓	✓
IT8077	Speech Processing		✓	✓	✓
GE8073	Fundamentals of Nanoscience	✓	✓	✓	✓
	Open Electives(OE)				
OAI751	Agricultural Finance, Banking and Co-operation		✓	✓	✓
OEE751	Basic Circuit Theory		✓	✓	✓
OBM751	Basics of Human Anatomy and Physiology		✓	✓	✓
OGI751	Climate Change and its Impact	✓	✓	✓	✓
OPY751	Clinical Trials		✓	✓	✓
OEC751	Electronic Devices		✓	✓	✓
OML752	Electronic Materials	✓	✓	✓	✓
OCH752	Energy Technology		✓	✓	✓
OCE751	Environmental and Social Impact Assessment		✓	✓	✓
OGI752	Fundamentals of Planetary Remote Sensing		✓	✓	✓
OEN751	Green Building Design		✓	✓	✓
OBM752	Hospital Management		✓	✓	✓
OEE752	Introduction to Renewable Energy Systems	✓	✓	✓	✓
OBT753	Introduction of Cell Biology		✓	✓	✓

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OMF751	Lean Six Sigma		✓	✓	✓
OAN751	Low Cost Automation	✓	✓	✓	✓
OEC754	Medical Electronics		✓	✓	✓
OEC756	MEMS and NEMS		✓	✓	✓
OBT752	Microbiology		✓	✓	✓
OCH751	Process Modeling and Simulation		✓	✓	✓
OIE751	Robotics	✓	✓	✓	✓
OEC753	Signals and Systems		✓	✓	✓
OME752	Supply Chain Management	✓	✓	✓	✓
OME753	Systems Engineering	✓	✓	✓	✓
OTL751	Telecommunication System Modeling and Simulation		✓	✓	✓
OCY751	Waste Water Treatment	✓	✓	✓	✓

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