

PROGRAM STRUCTURE

I SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
1	201HS1T01	Communicative English		✓		Students are able to demonstrate communication skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
2	201BS1T01	Differential Equations and Linear algebra		✓		Students are able to demonstrate problem solving skills by modelling physical phenomenon using ordinary differential equations, system of linear equations in various engineering disciplines.
3	201BS1T04	Engineering Chemistry				
4	201ES1T02	Programming For Problem Solving Using C	✓			Students are able to acquire skills related to control structures, arrays, string formulas enabling them to be employed in software industry.
5	201ES1I02	Computer Engineering Workshop		✓		Students are able to acquire skills related to Microsoft office tools, basics of Machine Learning and IOT.
6	201HS1L01	Communicative English Lab		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
7	201BS1L03	Engineering Chemistry Lab				
8	201ES1L02	Programming for Problem Solving using C Lab	✓			Students are able to acquire skills related to basic programming using C, enabling them to be employed as software developers.
9	201MC1T01	Environmental Science				

II SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
10	201BS2T07	Numerical Methods and Complex Variables		✓		Students are able to demonstrate problem solving skills by learning numerical methods for solving equations, differential equations, integrals, analytical properties of functions of complex variables, complex integration.
11	201BS2T09	Applied Physics				
12	201ES2T11	Computer Organization	✓			Students are nurtured with the internal organization and functioning of Computer System and enabling them to get employed in the hardware sectors of computers.
13	201ES2T04	Python Programming	✓			Students are able to acquire skills related to python programming, enabling them to be employed as software developers.
14	201ES2T07	Data Structures through C	✓			Students are able to acquire technical skills related to demonstrate fundamental algorithmic problems that enable them to be employed as software developers
15	201BS2L04	Applied Physics Lab				
16	201ES2L06	Data Structures through C Lab	✓			Students are able to acquire programming skills related to OOP's, and Basic Data structure like stacks, queues, linked lists, trees and tries which enable them to employed as a product developer.
17	201ES2L14	Python Programming Lab	✓			Students are able to acquire skills related to python programming, enabling them to be employed as software developers.
18	201MC2L01	Professional Communication Skills Lab		✓		Students are able to demonstrate technical skills to express fluently in both written as well as oral form of language which is very much essential for the career growth.
19	201MC2T02	Constitution of India		✓		This subject helps the student to demonstrate their technical skills for constitution making and its importance for building a democratic

						India, to make them understand the executive, legislative and judiciary system.
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III SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
20	201CS3T01	Advanced Data Structures		✓		Students are able to demonstrate programming solving skills by Identifying and using UNIX utilities to create and manage simple file processing operations
21	201CS3T02	Object Oriented Programming through C++	✓			Students are able to acquire technical skills related to demonstrate advanced algorithmic problems enabling them to be employed as software developers.
22	201CS3T03	Operating Systems	✓			Students are able to acquire skills related to concepts of object-oriented programming and process of data file manipulations using C++, enabling them to be employed as software developers.
23	201CS3T04	Software Engineering				
24	201BS3T13	Discrete Mathematics		✓		Students are able to demonstrate problem solving skills by learning Mathematical logic , Inference Theory, Graph Theory .
25	201CS3L01	Object Oriented Programming through C++ Lab	✓			Students are able to acquire skills related to concepts of object-oriented programming and process of data file manipulations using C++, enabling them to be employed as software developers.
26	201CS3L02	Operating Systems Lab	✓			Students are able to understand and acquire skills related to features and functionalities of operating System and understand the utilization of Input & output and memory operations which enables them to be employed for Hardware core side job opportunities
27	201CS3L03	Unix and Shell Programming Lab	✓			Students are able to understand and acquire skills related to features and functionalities of operating System and understand the utilization of Input & output and memory operations which enables them to be employed for Hardware core side job opportunities
28	201SC3L05	Applications of python-numpy	✓			Students are able to acquire skills related to python-NumPy programming, enabling them to be employed as software developers.

29	201SC3L06	web application development using full stack frontend development-module –I	✓			Students are able to acquire skills related to developing web pages using full stack enabling them to be employed as Front End developers.
30	201MC3T03	Biology for Engineers				

IV SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
31	201BS4T16	Probability and statistics		✓		Students are able to demonstrate problem solving skills by learning about random variables , probability distributions, sampling theory , test of hypothesis , correlation and regression.
32	201CS4T05	Formal Languages and Automata Theory		✓		Students' area able to acquire technical skills related to list, dictionaries, tuples, functions, classes and statistic methods in R tool
33	201CS4T06	Database Management Systems		✓		Students will be able to acquire technical skills related to Finite Automata, Grammars and Parsers.
34	201CS4T07	Java programming	✓			Students are able to acquire skills related to SQL commands, constraints, views, models, transactions, storage and indexing enabling them to be employed for backend developer
35	201HS4T03	Managerial Economics and Financial Accountancy			✓	Students are able to demonstrate competency in the domain of business management enabling them to become an entrepreneur.
36	201CS4L04	Database Management Systems Lab	✓			Students are able to acquire skills relates to software engineering, project estimation and management enabling them to acquire employed as software developer.
37	201CS4L05	Java Programming Lab	✓			Students are able to acquire skills related to SQL commands, constraints, views, models, transactions, storage and indexing enabling them to be employed for backend developer
38	201CS4L06	R Programming Lab	✓			Students are able to acquire skills related to java programming enabling them to be employed as software developers.
39	201SC4L18	Applications of python-pandas		✓		Students are able to demonstrate programming skill in python programming.
40	201SC4L19	Web application development using full stack frontend development module-II		✓		Students are able to acquire skills related to developing web pages, enabling them to be employed as front end developers.

41	201MC4T04	Essence of Indian Traditional Knowledge				
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V SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
42	191CS5T08	Compiler Design	✓			Students are able to acquire skills related to design, synthesize and evaluate the performance of Different Language Compilers and enabling them to be employed for designing of Compilers.
43	191CS5T09	Computer Networks	✓			
44	191CS5T10	Database Management Systems	✓			Students are able to acquire skills related to SQL commands, constraints, views, models, transactions, storage and indexing enabling them to be employed for backend developer
45	191CS5T11	Operating Systems	✓			Students are able to understand and acquire skills related to features and functionalities of operating System and understand the utilization of Input & output and memory operations which enables them to be employed for Hardware core side job opportunities
46	191CS5E04	Functional and Logic Programming	✓			Students are able to understand and acquire skills related to different approaches to solving problems: functional decomposition and declarative programming which enables them to be employed as software engineers.
47	191CS5E01	Advanced Computer Architecture	✓			Students are able to acquire skills related to design, and synthesize advanced computers enabling them to be employed for designing and manufacturing of computer architectures.
48	191CS5E02	Artificial Intelligence		✓		Students are able to demonstrate technical skills related to algorithms of AI to recognize, model, and solve problems in the analysis and design of information systems
49	191CS5E05	Software Requirement and Estimation		✓		Students are able to demonstrate technical skills related to Identify the software requirements for a given project.
50	191CS5E03	Computer Graphics				

51	191CE5O01	Basic Concrete Technology	✓			Students are able to acquire cognitive skills related to properties of concrete, design and test the concrete useful in constructional activities enabling them to be employed in constructional sector.
52	191EE5O01	Electrical Safety		✓		Students are able to demonstrate safety skills by providing knowledge on hazards with growing penetration of electrical devices in strategic areas including Space, mining and Nuclear energy.
53	191EE5O02	Electrical Materials		✓		Students are able to demonstrate technical skills in manufacturing of the electrical components depending on the application.
54	191EE5O03	Basic Electrical Measurements		✓		Students are able to acquire skills related to various types of electrical parameters that enable them to get employed in core (electrical) industry/company related to measurements of electrical parameters.
55	191ME5O01	Renewable Energy Sources		✓		Students are able to acquire skills related to solar, wind and bio-mass energy resources and conversion principles and techniques of various renewable resources.
56	191ME5O02	Fundamentals of Mechanical Engineering		✓		Students are able to acquire skills related to concepts of fundamentals of thermal, manufacturing and design fields in mechanical engineering.
57	191ME5O03	Supply Chain Management		✓		The students are able to acquire skills related to cost benefit analysis of different supply chains, designs which enable them to be employed in Marketing department of manufacturing and service based companies
58	191ME5O04	3D Printing		✓		Students are able to acquire skills on basic knowledge of various additive manufacturing processes and enabling them to be employed in manufacturing companies.
59	191ME5O05	Entrepreneurship Development and Incubation			✓	Students are able to acquire skills on basic knowledge on concepts of entrepreneurship development.
60	191EC5O01	Signals & Systems		✓		Skill Development: Students are able to acquire skills related to mathematics of signal processing that aids them in getting jobs in industries that use X-rays, MRIs and CT scans, allowing medical images to be analysed and deciphered by complex data processing techniques.

61	191EC5O02	Digital Electronics and Logic Design	✓			Students are able to acquire skills related to design, and synthesize basic of digital CKTS enabling them to be employed for designing and manufacturing of electronic equipment.
62	191EC5O03	Semi conductor devices	✓			Students are able to acquire skills related to the various power electronic drives which enables them to get employed in semiconductor based industries such as in communications, computing, health care, military systems, transportation, clean energy, etc.
63	191CS5O01	Data Structures	✓			Students are able to acquire technical skills related to demonstrate fundamental algorithmic problems that enable them to be employed as software developers
64	191CS5O02	Object Oriented Programming through C++	✓			Students are able to acquire skills related to concepts of object-oriented programming and process of data file manipulations using C++, enabling them to be employed as software developers.
65	191CS5O03	Java Programming	✓			Students are able to acquire skills related to java programming enabling them to be employed as software developers.
66	191CS5O04	R Programming	✓			Students are able to acquire skills related to R commands, Graphical representation of data sets, and visualization Techniques and also enabling them to be employed for Data analyst
67	191IT5O01	Data Base Management Systems	✓			Students are able to acquire skills related to Writing SQL Queries, implement normalization techniques and apply transaction processing techniques enabling them to be employed as a Database Administrator.
68	191IT5O02	Computer Graphics	✓			Students are able to demonstrate technical skill to develop graphical applications using line, polygon, curve drawing and clipping algorithms, design 2D and 3D applications.
69	191MI5O01	Overview of Mining		✓		This course demonstrate the technical skills of the student by giving them knowledge about life cycle of mines, ventilation, lighting and permanent lining of underground mines. It also gives knowledge about modern techniques of shaft sinking.
70	191PT5O01	Process Intensification in Petroleum Industry		✓		Students are able to demonstrate technical skill of characterizing different intensifications, modelling and analysis of process in Petroleum Industry.

71	191PT5O02	Fundamentals of Petroleum Industry		✓		Students are able to demonstrate technical skill of characterizing different streams, modelling and analysis of petroleum industry.
72	191AG5O01	Basic Crop Production Practices	✓			Students are able to acquire skills related to production practices and management techniques of agricultural and horticultural crops enabling them to be employed as agricultural field manager
73	191CS5L04	Operating Systems and Computer Networks Lab	✓			Students are able to understand and acquire skills related to features and functionalities of operating System and understand the utilization of Input & output and memory operations with computer networks which enables them to be employed for Hardware core side job opportunities
74	191CS5L05	Database Management Systems Lab	✓			Students are able to acquire skills related to SQL commands, constraints, views, models, transactions, storage and indexing enabling them to be employed for backend developer
75	191HS5T06	Employability Skills - III	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the students to feel comfortable to face several competitive examinations with confidence and competence.
76	191PR5P02	Socially Relevant Project	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
77	191MC5A08	Intellectual Property Rights and Patents			✓	It helps the graduates safe guard the IP and innovations at their place of work.

VI SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
78	191CS6T12	Data Ware Housing and Data Mining	✓			Students are able to acquire technical skills to synthesize and pre-process the raw data, and apply different classification and prediction algorithms which enable them to be employed as Data Analyst.
79	191CS6T13	Object Oriented Analysis and Design		✓		Students are able to acquire technical skills to develop different UML diagrams like use case, class, sequence, collaboration, component and deployment diagrams
80	191CS6T14	Web Technologies	✓			Students are able to acquire skills related to developing web pages, enabling them to be employed as Front End developers.
81	191CS6E09	Scripting languages		✓		Students are able to acquire programming skills related to building scripts that control a sequence of operations.
82	191CS6E06	Advance Operating Systems	✓			Students are able to understand and acquire skills related to features and functionalities of Advanced operating System and understand the utilization of Input & output and memory operations which enables them to be employed for Hardware core side job opportunities
83	191CS6E08	Machine Learning	✓			Students are able to acquire skills related to data science algorithms, enabling them to be employed as data scientists.
84	191CS6E10	Software Testing Methodologies		✓		Students are able to acquire technical skills by applying different software testing techniques and strategies.
85	191CS6E07	Image Processing		✓		Students are able to acquire technical skills related to image processing by using various tools related to computer vision.
86	191CS6E11	C# .Net	✓			Students are able to acquire technical and programming skills related to concepts Design user experience and functional requirements C#.NET application enabling them to be employed as software developers.
87	191CS6E13	Distributed Systems				

88	191CS6E14	Natural Language Processing		✓		Students are able to demonstrate technical skills related to the principles and methods of statistical natural language processing.
89	191CS6E15	Software Quality Assurance		✓		Students are able to demonstrate technical skills by Understanding the fundamental concepts of software automation
90	191CS6E12	Cloud Computing	✓			Students are able to acquire skills related to Cloud computing and distributed computing enabling them to be employed for cloud services sector
91	191CE6O02	Disaster Management		✓		Students are able to demonstrate technical skill of characterizing various disasters occurring in the environment and apply them in various disciplines of day to day life
92	191EE6O04	Energy Audit and Conservation Management			✓	The course focuses on the loss and profit studies and other company maintenance actives, creates the interest among the students to have own company.
93	191EE6O05	Non Conventional Energy resources	✓			Students are able to acquire skills related to various types of pivotal role in the development of a sustainable energy supply enabling the students to get employed in renewable energy generation sector.
94	191EE6O06	Instrumentation	✓			Students are able to acquire skills related to various types of electrical instruments that enable them to get employed in core (electrical) industry/company related to instrumentation of electrical parameters.
95	191ME6O06	Solar Energy Utilisation	✓			Students are able to acquire skills to understand the concepts of robot kinematics, Dynamics and trajectory planning enabling them to be employed in robot manufacturing industries
96	191ME6O07	Basic Thermodynamics and Heat Transfer		✓		Students are able to acquire skills to understand the concepts of bio medical instrumentation and can be employed in fabrication of bio medical instruments.
97	191ME6O08	Introduction to Hydraulics and Pneumatics		✓		Students are able to demonstrate problem solving skills in analysing the hydraulics and pneumatic systems
98	191ME6O09	3D Printing	✓			Students are able to acquire skills on basic knowledge of various additive manufacturing processes and enabling them to be employed in manufacturing companies.

99	191ME6O06	Robotics	✓			Students are able to acquire skills to understand the concepts of robot kinematics, Dynamics and trajectory planning enabling them to be employed in robot manufacturing industries
100	191ME6O09	Management Science	✓			Students are able to acquire skills on basic knowledge of various additive manufacturing processes and enabling them to be employed in manufacturing companies.
101	191ME6O12	Entrepreneurship Development and Incubation			✓	Students are able to acquire skills to understand and apply the business plan for preparation and evaluation of project and enabling them to be employed as a project engineer in various organizations.
102	191ME6O07	Biomedical Instrumentation		✓		Students are able to acquire skills to understand the concepts of bio medical instrumentation and can be employed in fabrication of bio medical instruments.
103	191ME6O08	ECAD Tools		✓		Students are able to demonstrate problem solving skills in analysing the hydraulic and pneumatic systems
104	191CS6O05	Python Programming	✓			Students are able to acquire skills related to python programming, enabling them to be employed as software developers.
105	191CS6O06	Operating Systems	✓			Students are able to understand and acquire skills related to features and functionalities of operating System and understand the utilization of Input & output and memory operations which enables them to be employed for Hardware core side job opportunities
106	191CS6O07	Web Technologies	✓			Students are able to acquire skills related to developing web pages, enabling them to be employed as Front End developers.
107	191CS6O08	Cyber Security	✓			Students are able to acquire technical skills related to Cyber security and enabling them to be employed for cyber security sector.
108	191CS6O09	AR / VR	✓			Students are able to acquire skills related to Design, create, and integrate audio, visual, and interactive elements into a comprehensive immersive experience enabling them to be employed as app developers.
109	191IT6O03	Computer Organization	✓			Students are able to acquire technical skills which help them to work with the internal organization and functioning of Computer System and enabling them to get employed in the hardware sectors of computers.

110	191IT6O04	AI Tools & Techniques		✓		Students are able to demonstrate technical skill of searching techniques used in AI, Expert systems, Knowledge representation and fuzzy logic.
111	191IT6O05	Robotic Process Automation		✓		Students are able to demonstrate technical skill to develop applications using UI Path Programming and extraction techniques to deploy robot configurations
112	191MI6O02	Industrial Safety Practices				
113	191MI6O03	Electrical Equipment's in Mines		✓		This subject helps the student to demonstrate their technical skills as it helps the students to understand standards of lighting in different working areas, AC and Dc motors and its maintenance, earthing methods and applicability. This subject will guide the students of mining to be self sufficient for the electrical related problems in mines.
114	191PT6O03	Unconventional Hydrocarbon Resources			✓	Students are able to demonstrate Competency in the domain of Integrated asset management enabling them to become an entrepreneur.
115	191PT6O04	Asset Management			✓	Students are able to demonstrate Competency in the domain of Integrated asset management enabling them to become an entrepreneur.
116	191AG6O02	Weather forecast in Agriculture	✓			Students are able to acquire skills related to biomass and agrochemical conversion techniques, biomass production and bio-diesel production enabling them to be employed in any bio mass energy sector.
117	191AG6O03	Bio-energy systems design and applications	✓			Students are able to acquire skills related to biomass and agrochemical conversion techniques, biomass production and bio-diesel production enabling them to be employed in any bio mass energy sector.
118	191CS6L06	Data Mining and Object Oriented Analysis and Design Lab	✓			Students are able to acquire skills related to concepts of object-oriented programming and data mining, enabling them to be employed as software developers and analysts.
119	191CS6L07	Web Technologies Lab	✓			Students are able to acquire skills related to developing web pages, enabling them to be employed as Front End developers.
120	191HS6T07	Employability Skills - IV	✓			This subject helps the students to acquire skills to be placed in a company as it will impart employability skills in students, which will enable the

						students to feel comfortable to face several competitive examinations with confidence and competence.
121	191MC6A09	Professional Ethics and Human Values		✓		This subject helps the students to demonstrate their skills as they inculcate human values to grow as responsible human beings with proper personality and helps them to maintain ethical conduct and discharge their professional duties.

VII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
122	171CS7T18	Cryptography and Network Security		✓		Students are able to acquire technical skills to work with different cryptographic techniques, Symmetric and asymmetric cryptographic techniques, key management and security at network level.
123	171CS7T19	UML and Design Patterns		✓		Students are able to demonstrate technical skill of unified modelling language and design pattern used in various software project.
124	171CS7T20	Cloud Computing	✓			Students are able to acquire skills related to Cloud computing and distributed computing enabling them to be employed for cloud services sector
125	171HS7T05	Management Science			✓	Students are able to apply the knowledge of economic and financial management enabling them to become an entrepreneur in any domain of their choice.
126	171CS7E13	Software Project Management			✓	Students are able to apply the knowledge of Software Project Management skills and enabling them to become an entrepreneur in any domain of their choice.
127	171CS5E14	Big Data Analytics	✓			Students are able to gain skills related to Big data analytics and related tool enabling them to be employed for data analytics role.
128	171CS7E15	Image Processing		✓		Students are able to acquire technical skills related to image processing by using various tools related to computer vision.
129	171CS7E16	Cyber Laws		✓		The students are able to demonstrate Technical skills by Modelling of cyber laws and security.
130	171CS7E17	Middleware Technologies		✓		Students are able to acquire technical skills related to transfer information from one program to one or more other programs in a distributed environment


131	171CS7E18	Artificial Intelligence and Machine Learning	✓			Students are able to acquire skills related to data science algorithms, enabling them to be employed as data scientists.
132	171CS7E19	Information Retrieval Systems		✓		Students are able to acquire technical skills related to information retrieval systems by using various retrieving techniques used in real time environment.
133	171CS7E20	Mobile Computing		✓		Students are able to demonstrate technical skill of mobile computing nomenclature to describe and analyze existing mobile computing frameworks and architectures
134	171CS7L12	UML and Design Patterns Lab		✓		Students are able to demonstrate technical skill of unified modelling language and design pattern used in various software project.
135	171CS7L13	Big Data Analytics Lab	✓			Students are able to gain skills related to Big data analytics and related tool enabling them to be employed for data analytics role.
136	171CS7P01	Industry Oriented (Internship) Minor Project	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.

VIII SEMESTER

S. No	Course Code	Name of the Course	Employability	Skill Development	Entrepreneurship	Remarks
137	171CS8E21	Agile Methodologies	✓			Students are able to acquire skills relates to software Process models and enabling them to acquire employed as software developer.
138	171CS8E22	Cyber Security	✓			Students are able to acquire skills related to design, develop and evaluate the performance of secure systems enabling them to be employed for designing and manufacturing of secure communication equipment.
139	171CS8E23	Distributed Databases		✓		Students are able to demonstrate technical skills of Query Optimization, Reliability and Concurrency Control in projects.
140	171CS8E24	Distributed Systems		✓		Students are able to demonstrate technical skills of Interprocess Communication using java RMI, Distributed File Systems and analysis various distributed algorithms in projects.
141	171CS8O01	Microprocessor and Multi Core Systems		✓		Students are able to demonstrate technical skills of modern multi-core processors and its applications.
142	171CS8O02	Embedded Systems	✓			Students are able to acquire skills related to design, program and implement embedded systems and evaluate their performance enabling them to be employed for designing and manufacturing of electronic equipment with embedded systems.
143	171CS8O03	Soft Computing		✓		Students are able to acquire technical skills of Implement, evaluate and compare solutions by various soft computing approaches for finding the optimal solutions.
144	171EE8O05	Robotics		✓		Students are able to acquire skills related to the measurement of linear and angular measuring instruments, working of measuring instruments and control systems.
145	171CS8O04	Operations Research		✓		Students are able to demonstrate technical skill to formulate and solve problems as networks and graphs.
146	171CS8O05	Optical Communications	✓			Students are able to acquire skills related to design, fabricate and evaluate the performance of optical communication systems enabling them to be

						employed for designing, manufacturing and implementation of fiber optic communication systems
147	171EE8O07	Internet of Things	✓			Students are able to acquire skills related to Internet of Things and enabling them to be employed for IoT sector.
148	171EC8O02	Disaster Management		✓		Students are able to demonstrate technical skill of characterizing various disasters occurring in the environment and apply them in various disciplines of day to day life
149	171CS8O06	Renewable Energy sources		✓		Students are able to acquire skills related to solar, wind and bio-mass energy resources and conversion principles and techniques of various renewable resources.
150	171CS8O07	Nano Technology and its Applications		✓		Students are able to acquire technical skills by understanding the basic mathematical techniques for describing nano systems
151	171CS8P02	Project Work	✓			Students will be able to demonstrate problem identification, analysis, design solutions or applications in electronics and communication domain through the acquired technical, cognitive, communication and creative skills to address societal needs.
TOTAL		151	71	59	9	


Program Coordinator


Head of the Department
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