



Hindustan College of Science and Technology

Department of Chemical Engineering

COURSE OUTCOMES **(SESSION 2021-22)**

B.TECH (CHEMICAL ENGINEERING)

SEMESTER- III

Sl. No.	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KOE031-38/ KAS302	Engineering Science Course/Maths IV	3	1	0	30	20	50		100		150	4
2	KAS301/ KVE 301	Technical Communication/Universal Human values	2	1	0	30	20	50		100		150	3
			3	0	0								
3	KCH301	Material and Energy Balance	3	1	0	30	20	50		100		150	4
4	KCH302	Chemical Engineering Fluid Mechanics	3	1	0	30	20	50		100		150	4
5	KCH303	Heat Transfer Operations	3	0	0	30	20	50		100		150	3
6	KCH351	Chemical Engineering Fluid Mechanics Lab	0	0	2					25	25	50	1
7	KCH352	Heat Transfer Operations Lab	0	0	2					25	25	50	1
8	KCH353	Soft Computing Lab	0	0	2					25	25	50	1
9	KCH354	Mini Project or Internship Assessment*	0	0	2			50				50	1
10	KNC301/ KNC302	Computer System Security/Python Programming	2	0	0	15	10	25		50			0
11		MOOCs (Essential for Hons. Degree)											
		Total										950	22

*The Mini Project or internship (3-4 weeks) conducted during summer break after II semester and will be assessed during III semester.

SEMESTER- IV

Sl. No.	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KAS402/ KOE041-48	Maths IV/Engineering Science Course	3	1	0	30	20	50		100		150	4
2	KVE401/ KAS401	Universal Human Values/ Technical Communication	3	0	0	30	20	50		100		150	3
			2	1	0								
3	KCH401	Mechanical Operations	3	0	0	30	20	50		100		150	3
4	KCH402	Chemical Reaction Engineering-I	3	1	0	30	20	50		100		150	4
5	KCH403	Chemical Engineering Thermodynamics	3	1	0	30	20	50		100		150	4
6	KCH451	Mechanical Operations Lab	0	0	2				25		25	50	1
7	KCH452	Chemical Reaction Engineering Lab	0	0	2				25		25	50	1
8	KCH453	Numerical Methods of Analysis Lab	0	0	2				25		25	50	1
9	KNC402/ KNC401	Python Programming/Computer System Security	2	0	0	15	10	25		50			0
10		MOOCs (Essential for Hons. Degree)											
		Total										900	21

B.Tech III Year, V Semester, Chemical Engineering

SEMESTER- V													SESSION 2020-21	
Sl. No	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit	
			L	T	P	CT	TA	Total	PS	TE	PE			
1	KCH 501	Mass Transfer -I	3	1	0	30	20	50		100		150	4	
2	KCH 502	Chemical Reaction Engineering - II	3	1	0	30	20	50		100		150	4	
3	KCH 503	Process Dynamics and Control	3	1	0	30	20	50		100		150	4	
4	KCH 051-054	Departmental Elective-I	3	0	0	30	20	50		100		150	3	
5	KCH 055-058	Departmental Elective-II	3	0	0	30	20	50		100		150	3	
6	KCH551	Mass Transfer-I Lab	0	0	2				25		25	50	1	
7	KCH 552	PDC Lab	0	0	2				25		25	50	1	
8	KCH 553	Process Modelling and Simulation Lab	0	0	2				25		25	50	1	
9		Mini Project or Internship Assessment*	0	0	2				50			50	1	
10	NC	Constitution of India / Essence of Indian Traditional Knowledge	2	0	0	15	10	25		50				
11		MOOCs (Essential for Hons. Degree)												
		Total	17	3	8							950	22	

*The Mini Project or internship (4 weeks) conducted during summer break after IV semester and will be assessed during V semester.

B.TECH III YEAR VI SEMESTER CHEMICAL ENGINEERING

SEMESTER- VI										SESSION 2020-21			
Sl No	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KCH 601	Mass Transfer -II	3	1	0	30	20	50		100		150	4
2	KCH 602	Transport Phenomenon	3	1	0	30	20	50		100		150	4
3	KCH 603	Chemical Technology	3	1	0	30	20	50		100		150	4
4	KCH 061-064	Departmental Elective-III	3	0	0	30	20	50		100		150	3
5		Open Elective-I [Annexure - B(iv)]	3	0	0	30	20	50		100		150	3
6	KCH 651	Chemical Technology Lab	0	0	2				25		25	50	1
7	KCH 652	Mass Transfer-II Lab	0	0	2				25		25	50	1
8	KCH 653	Technical Presentation	0	0	2				25		25	50	1
9	NC	Essence of Indian Traditional Knowledge/ Constitution of India	2	0	0	15	10	25		50			
10		MOOCs (Essential for Hons. Degree)											
		Total	0	3	6							900	21

B.TECH IV YEAR VII SEMESTER CHEMICAL ENGINEERING

SEMESTER- VII													SESSION 2021-22	
Sl. No	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit	
			L	T	P	CT	TA	Total	PS	TE	PE			
1	KHU701/ KHU702	HSMC -1 #/ HSMC-2 #	3	0	0	30	20	50		100		150	3	
2	KCH 071-074	Departmental Elective-IV	3	0	0	30	20	50		100		150	3	
3	KCH 075-078	Departmental Elective-V	3	0	0	30	20	50		100		150	3	
4		Open Elective-II	3	0	0	30	20	50		100		150	3	
5	KCH 751	LAB-1	0	0	2				25		25	50	1	
6	KCH 752	Mini Project or Internship Assessment*	0	0	2				50			50	1	
7	KCH 753	Project I	0	0	8				150			150	4	
8		MOOCs (Essential for Hons. Degree)												
		Total										850	18	

*The Mini Project or internship (4 weeks) conducted during summer break after VI semester and will be assessed during VII semester.

DEPARTMENTAL ELECTIVE - IV

- KCH-071** **Energy Engineering & Management**
- KCH-072** **Plant Design and Economics**
- KCH-073** **Petroleum Refining Technology**
- KCH-074** **Industrial Pollution Abatement and Waste Management**

DEPARTMENTAL ELECTIVE - V

- KCH-075** **Fertilizer Technology**
- KCH-076** **Process Utilities and Safety**
- KCH-077** **Advanced Separation Techniques**
- KCH-078** **Nanotechnology Applied To Chemical Engineerin**

B.TECH IV YEAR VIII SEMESTER CHEMICAL ENGINEERING

SEMESTER- VIII													SESSION 2021-22	
Sl. No	Subject Codes	Subject	Periods			Evaluation Scheme				End Semester		Total	Credit	
			L	T	P	CT	TA	Total	PS	TE	PE			
1	KHU801 KHU802	HSMC-1#/HSMC-2#	3	0	0	30	20	50		100		150	3	
2		Open Elective-III	3	0	0	30	20	50		100		150	3	
3		Open Elective-IV	3	0	0	30	20	50		100		150	3	
4	KCH 851	Project	0	0	18				100		300	400	9	
5		MOOCs (Essential for Hons. Degree)												
		Total										850	18	

Program Outcomes (POs)

Engineering Graduates will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. **Individual and teamwork:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcome (PSOs)

1. Ability to apply chemical engineering knowledge for solving engineering problem related to Chemical Engineering field.
2. Develop the attitude to solve global problems related to technology, environment and Economics.

Department: Chemical Engineering

Course Outcomes(COs):B.Tech. 3rd and 4th year

Session:2021-22

B.Tech:3rd Semester		
Code	Course Name	Course Outcomes
KCH 301	Material And Energy Balance	CO1:Apply steady-state and unsteady state material and energy balance on a system.
		CO2:Analyze all the stiochiometric and balances being applied on a system undergoing chemical process
		CO3:Design equipment with inlet and outlet; including recycle- bypass streams for a chemical process.
KCH 302	Chemical Engg. Fluid Mechanics	CO1:Understand the properties and flow of fluid
		CO2:Analyse the model and prototype.
		CO3:Explain the factors influencing velocity profiles for laminar and turbulent flow
		CO4:Design the pumps and compressors for optimum operation
KCH 302	Chemical Engg. Fluid Mechanics	CO1:Understand the properties and flow of fluid.
		CO2:Analyse the model and prototype.
		CO3:Explain the factors influencing velocity profiles for laminar and turbulent flow.
		CO4:Design the pumps and compressors for optimum operation
KCH 303	Heat Transfer Operations	CO1:apply basic principles of heat transfer for designing heat transfer systems
		CO2:model heat transport systems and develop predictive correlation.
		CO3:assess and evaluate various designs for heat transfers and optimize the solution
KCH 351	Chemical Engg. Fluid Mechanics Lab	CO1:Calculate coefficient of discharge through v-notch, venturimeter, and orificemeter
		CO2:Determine friction losses through different pipes and fittings.
		CO3:Calculate the efficiency of centrifugal pump.
		CO4:Study different types of flow and analyse Bernoulli's law.
KCH 352	Heat Transfer Operations Lab	CO1:Determine the thermal conductivity of different materials.
		CO2:Calculate the rate of heat transfer through different types of heat ex-changers in different flow patterns
		CO3:Study the natural convection phenomena and temperature distribution in various setups(like composite wall, lagged pipe etc.)
B.Tech:4th Semester		
KCH 401	Mechanical Operations	CO1:Measure the particle size
		CO2:Estimate the crushing efficiency of different type's crushers
		CO3:Explain the particle sedimentation.
		CO4:Design the storage area for the different types of solids.
KCH 402	Chemical Reaction Engineering-I	CO1:Identify the reaction type and their kinetics.
		CO2:Design the reactor for the batch and continuous chemical process.
		CO3:Understand the Ideal and Non – Ideal Reactors.

KCH 403	Chemical Engg. Thermodynamics	CO1:Identify the thermodynamic property of the pure substance and mixture.
		CO2:Know the basic principles of refrigeration and liquefaction process.
		CO3:Understand the relation between thermodynamic and chemical reactions
KCH 451	Mechanical Operations Lab	CO1:Measure the particle size.
		CO2:Estimate the crushing efficiency of different type's crushers
		CO3:Calculate medium and filter resistance of filters.
		CO4: Estimate the pressure drop in packed and fluidized bed
KCH 452	Chemical Reaction Engg. Lab	CO1:Analyse the reaction type and their kinetics. Design the reactor for the batch and continuous chemical process.
		CO2:Analyse the reaction type and their kinetics.
		CO3: Design the reactor for the batch and continuous chemical process.
KCH 453	Numerical Methods Of Analysis Lab	CO1:Compare thecomputational methods for advantages and drawback
		CO2:Implement the computational methods using any ofexisting programming languages, test such methods and compare between them
		CO3:Identify thesuitable computational technique for a specific type of problems and develop thecomputational method that is suitable for the underlying problem.
B.Tech:5th Semester		
Code	Course Name	Course Outcomes
KCH 501	Mass Transfer-I	CO1:Understand the principles of molecular diffusion and basic laws of mass transfer.
		CO2:Utilize mass transfer concepts to design gas absorption systems.
		CO3:Discuss the basics of humidification process and its application
		CO4:Explain the concept and mechanism of drying operations.
		CO5:Analyze the concept of crystallization process and identification of suitable crystallizer.
KCH 502	Chemical Reaction Engineering - II	CO1:Classify catalysts and predict physical properties of catalyst, surface area, void volume, solid density pore volume distribution.
		CO2:Understand the nature and mechanism of catalytic reactions and predict the rate controlling step reactions.
		CO3:Analyze the various contacting pattern for two phase systems.
		CO4:Predict the rate equation for heterogeneous reactions and understand the effect of velocity, particle size and fluid properties on rate of reactions controlled by mass transfer.
		CO5:Understand the nature of Biochemical reactions and designing of fermentors.
KCH503	PROCESS DYNAMICS & CONTROL	CO1:Demonstrate fundamental understanding of process control.
		CO2:Develop transfer function (input-output) and models for linear dynamical processes.
		CO3:Characterize the dynamics and stability of processes based on mathematical analysis.
		CO4:To analyze the stability of a system.
		CO5:Learn To understand the advanced control systems.

KCH052	Optimization Techniques	CO1:Optimization, Degree of freedom, Optimization formulation of theProblem, Analytical Method, Necessary and sufficient conditionsfor optimum in single and multi-variable unconstrained and constrained problems.
		CO2:Unconstrained one dimensional search, Newton, Quasi-Newtonand Secant method for uni-dimensional search, Region climnationmethod (Golden Section Fibonacci, Dichotomous etc),Unconstrained multivariable optimization with special focus toPowell’s conjugate direction method.
		CO3:Linear Programming, graphical simplex method, revised simplexmethod, duality and transportation problems, unconstrained multi variable search, Direct methods, Indirect method.
		CO4:Forward, Backward and Divided Differences Table, CentralDifferences, Newton’s Forward, Backward and Divided Differences Interpolation Formula, Interpolation Polynomials,Lagrange Interpolation Formula, Sensitivity analysis
		CO5:Principle of optimality, discrete and continuous dynamic programming.Algorithms & Computer Programming: Newton-RaphsonMethod, Gauss Elimination, Trapezoidal Rule, Simpson’s 1/3rd, 3/8th Rule,Runge-Kutta 2nd Order, and R-K 4th Order Methods
KCH-058	IPRS	CO1:The students once they complete their academic projects, shall get an adequate knowledge on patent and copyright for their innovative research works.(K2)
		CO2:During their research career, information in patent documents provide useful insight on novelty of their idea from state-of-the art search. This provide further way for developing their idea or innovations.(K3)
		CO3:Pave the way for the students to catch up Intellectual Property(IP) as an career option. (K4)
		CO4:To aware about current trends in IPR and Govt. steps in fostering IPR.(K2)
		CO5:Gives awareness of international standards to students.(K2)
KCH551	Mass Transfer-I Lab	CO1: Analyze the data on diffusion coefficient and mass transfer coefficient
		CO2: Study the characteristics of packed bed absorption column
		CO3:Discuss the working of a cooling tower and temperature drop in a fluid inside it
		CO4: Understand the working mechanism of crystallizer
		CO5: Understand the working mechanism of dryer
KCH552	PROCESS DYNAMICS & CONTROL LAB	CO1:Understand open loop dynamics of typical chemical engineering processes such as fluid flow, chemical reactors, manometers and heated stirred tanks.
		CO2:Operate and handle the interacting and non-interacting systems in industries.
		CO3:Understand the various input behaviours.
		CO4:Understand the working of various valves in industries and understand the function of each small unit attached to it.
		CO5:Select and operate different types of controllers used in industries.

KCH553	PROCESS MODELING & SIMULATION LAB	CO1: Analyze steady-state and unsteady state material and energy balance on a system
		CO2: Analyze physical and chemical phenomena involved in various chemical processes.
		CO3: Develop mathematical models for various chemical engineering plant-based processes.
		CO4: Use various simulation approaches such as sequential, simultaneous, and equation oriented.
		CO5: Simulate a chemical process using process simulators (ASPEN Plus/ ASPEN Hysys/ MATLAB/ PRO-II/ CHEMCAD/ FlowTran/ Fluent/ MATLAB etc.).
	MINI PROJECT	CO1: Analyze the problem in scientific manner and try to solve it through technological aspects.
		CO2: Understanding the problems through literature review of the concern area.
		CO3: Collection, arranging and handling of given data by using various data handling techniques.
		CO4: Comparison, conclusion and provide the suitable solution of the given problem.
		CO5: Analyze the cost estimation of the project.
B.Tech:6th Semester		
KCH601	Mass Transfer-II	CO1: Understand the basics of distillation process for separation
		CO2: Analyze the distillation process for binary and multicomponent mixtures
		CO3: Determine the number of stages required for separation of liquid liquid and solid liquid extraction
		CO4: Determine the number of stages required for separation of solid liquid extraction
		CO5: Understand the adsorption mechanism and adsorption equilibrium
KCH602	TRANSPORT PHENOMENON	CO1: Understand the chemical and physical transport processes and their mechanism.
		CO2: Do heat, mass and momentum transfer analysis simultaneously.
		CO3: Analyze industrial problems along with appropriate approximations and boundary conditions.
		CO4: Develop steady and time dependent solutions along with their limitations.
		CO5: Apply the shell balance approach to derive differential mass balance equations for laminar flow system and solve heat and mass transfer problems.

KCH603	CHEMICAL TECHNOLOGY	CO1:Understand the plant process and flow sheet.
		CO2:Keep up the productivity while maintaining all safety norms stipulated, during their job.
		CO3:Solve Engineering problems that are likely to come across during the operation of plants.
		CO4:Suggest alternative manufacturing process in terms of Economic viability of the product.
		CO5:Describe the process of crude oils production & refining and Characteristics of crude oils.
KCH-062	Sustainability of Environment	CO1:Understand the impact of environmental pollution and concept of sustainable development
		CO2: Analyze various resource conservation methodologies
		CO3: Design of various air pollution and water pollution control equipments
		CO4: Apply the basic scientific and sustainability principles behind waste management for solving practical waste management challenges
		CO5: Discuss the ethical and moral issues involved in seeking the sustainable use of resources
KNC 602	Indian Tradition, Culture and Society	CO1: To identify and understand the roots and details of Society State and Polity in India.
		CO2:To understand the importance of Indian Literature, Culture, Tradition, Practices and to apply in present system
		CO3:To analyze the Indian Religion, Philosophy, Practices and in shadow of Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy and to apply in
		CO4: To analyze the Science, Management and Indian Knowledge System and to apply in present system.
		CO5: To evaluate the Indian Architect, Engineering and Architecture in Ancient India, Indian's Cultural Contribution to the World and to create environment in Arts and
KCH 651	CHEMICAL TECHNOLOGY LAB	CO1: Understand the basic concepts of production processes.
		CO2:Conduct experimental procedure for manufacture of soap, organic chemicals etc and analyze them.
		CO3: Able to understand the measurement of various properties like viscosity, Molecular weight using viscometer.
		CO4: Make the students aware of basic safety considerations during handling of chemicals, glass ware usage, instruments used in analysis and production activities.
		CO5: Enhance their practical knowledge and thus their employability.
KCH 652	Mass Transfer –II Lab	CO1: Analyze the data on vapor liquid equilibrium and boiling point diagram
		CO2: Discuss the performance of distillation column
		CO3: Explain the adsorption kinetics of isotherm of solid liquid interface
		CO4: Understand the separation process by liquid-liquid extraction
		CO5:Understand the separation process by solid -liquid extraction

B.Tech:7th Semester		
KHU701	Rural Development: Administration and Planning	CO1: Understand the true perspective of the rural way of life and the various socio economic problems that affect the rural economy
		CO2: Apply the measures that can be under taken to uplift the rural economy
		CO3: Analyze how the people lift from poverty and deprivation
		CO4: This study helps address issues that have been hindering development and progress in the villages for a long time
		CO5: This study helps address issues that have been hindering development and progress in the villages for a long time
KCH-072	Plant Design and Economics	CO1: To learn basic economic concept, to understand and apply this concepts in the project works undertaken and to chemical engineering situation by solving problem (K2)
		CO2: Select appropriate process for a project. (K3)
		CO3: Differentiate the equipment and able to prepare specification sheet(K4)
		CO4: Understand piping and instrumentation diagram.(k3)
		CO5: Evaluate the project cost including capital investment, product cost, breakeven point,depreciation cost for equipment and the total project cost. (K4)
KCH075	FERTILIZER TECHNOLOGY	CO1:Use reactions and unit operations steps in manufacturing of various fertilizers.
		CO2: Select the relevant manufacturing process for different fertilizers.
		CO3: Identify engineering problems in fertilizer manufacturing.
		CO4: Ability to understand the importance of fertilizers.
		CO5: Select appropriate fertilizer on the basis of properties.
KOE-076)	Vision for Humane Society	CO1: To help the students to understand the importance and types of relationship with expressions
		CO2: To develop the competence to think about the conceptual framework of undivided society as well as universal human order.
		CO3: To help the students to develop the exposure for transition from current state to the undivided society and universal human order.
KCH751	ENERGY LAB	CO1: Able to understand the importance of proximate analysis for solid fuels.
		CO2: Able to analyze the flue gases and determine carbon residue.
		CO3: Able to gain knowledge on the application of distillation process.
		CO4: Write technical reports effectively with proper conclusions.
		CO5: Able to understand the importance of proximate analysis for solid fuels.

KCH752	MINI PROJECT or Internship Assessment	CO1: Analyze the problem in scientific manner and try to solve it through technological aspects. (K3)
		CO2: Understanding the problems through literature review of the concern area.(K2)
		CO3: Collection, arranging and handling of given data by using various data handling techniques.(K4).
		CO4:Comparison, conclusion and provide the suitable solution of the given problem.(K4)
		CO5: Analyze the cost estimation of the project.(K3)
KCH753	PROJECT-1	CO1: Analyze the problem in scientific manner and try to solve it through technological aspects. (K3)
		CO2: Understanding the problems through literature review of the concern area.(K2)
		CO3: Collection, arranging and handling of given data by using various data handling techniques.(K4).
		CO4:Comparison, conclusion and provide the suitable solution of the given problem.(K4)
		CO5: Analyze the cost estimation of the project.(K3)
B.Tech:8th Semester		
KHU802	Project Management & Entrepreneurship	CO1: Students can Understand the entrepreneurship and their classification
		CO2: Students will know how to generate the idea of innovation
		CO3: Students will have a clear idea for preparation of project and how can they implement
		CO4: Students will know the project financing and social entrepreneurship
		CO5: Student will know the sustainability of project and risk and uncertainty in project evaluation
KOE-085	Quality Management	CO1: Identify the contribution of quality gurus in TQM journey and acknowledge the importance of customers in manufacturing.
		CO2: Explain and analyze quality systems and organizational structures to apply quality principles in different processes
		CO3: Design an effective performance measurement system to optimize standard statistical process control techniques
		CO4: Describe and analyze various reliability methods / tests and the associated failure analysis methods
		CO5: Apply the concepts of ISO - 9000 and ISO -14000 standards in auditing techniques such as JIT and Taguchi Method.

KOE-098	Human Values in Buddha and Jain Darshan	CO1: To help students understand the basic principles of Buddha and Jain Darshan
		CO2: To help students understand the existential realities including the human existence through Buddha and Jain Darshan
		CO3: To help them to see the participation of human beings in the nature/existential ralities and therefore the human conduct through each one of them
		CO4: To help students apply this understanding to make their living better at different levels-Individual, Family, Society and Nature
		CO5: To facilitate the students in applying this understanding in their profession and lead an ethical life
KCH851	PROJECT	CO1: Analyze the problem in scientific manner and try to solve it through technological aspects. (K3)
		CO2: Understanding the problems through literature review of the concern area.(K2)
		CO3: Collection, arranging and handling of given data by using various data handling techniques.(K4).
		CO4: Comparison, conclusion and provide the suitable solution of the given problem.(K4)
		CO5: Analyze the cost estimation of the project.(K3)