SEMESTER I	
COURSE NAME WITH COURSE CODE	**COURSE OUTCOMES**
UCE2201: ENGLISH FOR UNDER GRADUATES	**CO1. Identify the speech sounds of English and articulate them correctly**
	CO2. Use appropriate words and expressions in their speech and writing
	CO3. Demonstrate their awareness of correct usage of English grammar in writing and speaking
	CO4. Revise and correct sentences
	CO5. Improve their reading comprehension of functional, fictional and non-fictional texts
UMA2201M: കവിതാസാഹിത്യം	**CO1.** മലയാള കവിതാ സാഹിത്യത്തിന്റെ ചരിത്രവികാസഘട്ടങ്ങളെക്കുറിച്ചുള്ള ജ്ഞാനം നേടുക നേടുകയും താരതമ്യാത്മക പഠനത്തിലൂടെ കവിത-ചരിത്രത്തെ വിലയിരുത്തുകയും ചെയ്യുന്നു

	CO2. ജീവിതത്തിൽ പ്രത്യാശ വളർത്തുവാനും ജീവിത മൂല്യങ്ങളെക്കുറിച്ചുള്ള ജ്ഞാനം ആർജ്ജിക്കുവാനും സാഹിത്യം എപ്രകാരം സഹായിക്കുന്നു എന്ന് മനസിലാക്കുക.
	CO3. പെൺകവിതകളുടെയും ദളിത് കവിതകളുടെയും പഠനത്തിലൂടെ വിമർശനാത്മക ജ്ഞാനശേഷി വളർത്തിയെടുക്കുക.
	CO4. പാരിസ്ഥിതിക കാവ്യലോകത്തെക്കുറിച്ചുള്ള പഠനത്തിലൂടെ പരിസ്ഥിതിയുടെ പ്രാധാന്യവും പ്രസക്തിയും തിരിച്ചറിയുക.
	CO5. ഭാഷാപരവും രചനാപരവുമായ കഴിവുകളെ പരിപോഷിപ്പിക്കുകയും സർഗാത്മക സാഹിത്യരചനകൾക്ക് സഹായകമാകുംവിധം പരിശീലനം നൽകുകയും ചെയ്യുക.
Common Course II – Hindi UMA2201H: Communication, Translation and Applied Grammar	**CO1. Translate passage from English to Hindi and vice versa.**
	CO2. Communicate Hindi in different situations.
	CO3. Write different types of letters in Hindi.
	CO4. Write, read and speak Hindi.

	CO5. Identify the parts of speech and use it in real life situations
Common Course II - German:UMA2201G: GRAMMAR AND TRANSLATION	**CO1. Identify the distinctive sounds in German**
	CO2. Articulate words with correct pronunciation
	CO3. Understand basic grammar
	CO4. Develop the skills of reading, writing and listening in German
	CO5. Ability to translate from German to English with the help of dialogue patterns, conversations, and short texts, written and oral exercises
UMA2202: FOUNDATION OF MATHEMATICS	**CO1. Identify different types of sets, functions and their operations**
	CO2. Demonstrate equivalence relations and partial orderings on various sets
	CO3. Demonstrate logical statements using truth tables
	CO4. Apply different methods to solve polynomial equations of higher orders

	CO5. Analyze the nature of roots of polynomial equations
UMA2203: BASIC STATISTICS	CO1. Demonstrate appropriate sampling and data collection processes
	CO2. Calculate measures of central tendency and dispersion
	CO3. Calculate probability by applying theoretical results.
	CO4. Solve problems of probability, permutation and combinations.
	CO5. Construct index numbers.
UMA2204: INTRODUCTION TO COMPUTER	CO1. Understand the computer fundamentals.
	CO2. Understand the Computer Memory.
	CO3. Understand the different types of Operating Systems and its functions
	CO4. Understand the basics of software systems.
	CO5. Implement the conversion of numbers in different number bases.

UMA2205: FUNDAMENTALS OF ACCOUNTING	CO1. Identify the objectives and functions of accounting, accounting concepts and conventions required for the business enterprise.
	CO2. Develop the ability to use the fundamental accounting equation to analyze the effect of business transactions on an organization's accounting records.
	CO3. Prepare trial balance by understanding the format in order to ensure the arithmetical accuracy.
	CO4. Demonstrate the skill to explain the concept and methods of depreciation.
	CO5. Create final accounts of the sole proprietorship by understanding the nature of accounts
UMA2206: LIFE SKILLS	CO1. Develop communication competence to face interviews and group discussions
	CO2. Develop report writing skills
	CO3. Develop critical thinking process to enhance problem solving skills

	CO4. Understand team dynamics & effectiveness.
	CO5. Create an awareness on Ethics and Human Values.
SEMESTER II	
UCE2202: Writing for Academic Purposes	**CO1. Compose effective thesis statements, body paragraphs and conclusions**
	CO2. Paraphrase information from outside sources effectively and accurately
	CO3. Summarize information from academic sources, distinguishing between main ideas and details
	CO4. Apply the conventions of APA documentation
	CO5. Write academic essays using appropriate shaping strategies.
UMA2207M: കഥാസാഹിത്യം	**CO1.** മലയാള കഥ-നോവൽ സാഹിത്യത്തിൻറെ ചരിത്രവികാസഘട്ടങ്ങളെക്കുറിച്ചുള്ള ജ്ഞാനം നേടുകയും അവയിലൂടെ സ്വന്തമായി കഥകളെഴുതാനുള്ള തുടക്കം കുറിക്കുകയും ചെയ്യുന്നു

	CO2. ജീവിതത്തിൻറെ ആഴങ്ങളെ സ്പർശിക്കുന്ന കഥകളിലൂടെ ജീവിതത്തെക്കുറിച്ചു കൂടുതൽ സൂക്ഷ്മവും സമഗ്രവുമായ അവബോധം തന്റെയോ തന്നോട് ചേർന്നുനിൽക്കുന്ന സഹജീവികളിലൊ എപ്രകാരം പ്രകടമാകുന്നുണ്ടെന്ന ചിന്ത ഉണർത്തുകയും അതിനെ സ്വന്തം കഥയിലേയ്ക്ക് പരിവർത്തനപ്പെടുത്തുകയും ചെയ്യുന്നു.
	CO3. കഥാസാഹിത്യത്തെ മുൻനിർത്തി കേരളത്തിൻറെ സാമൂഹ്യവും സാംസ്കാരികവുമായ സവിശേഷതകളെ സമകാലിക സാമൂഹ്യജീവിതവുമായി ബന്ധിപ്പിക്കുവാനും അതുവഴി നവീനമായ ഒരു കഥാപ്രസ്ഥാനത്തിന് തുടക്കം കുറിക്കാൻ ശ്രമിക്കുന്നു
	CO4. സമകാലിക സാഹിത്യത്തെക്കുറിച്ചും സാഹിത്യത്തിലെ നൂതന പ്രവണതകളെക്കുറിച്ചും അറിവ് നേടുകയും ആ സാധ്യതകളെ സ്വന്തം കഥകളിൽ എങ്ങനെ ഉൾപ്പെടുത്തിക്കൊണ്ട് രചനയെ പരിപോഷിപ്പിക്കാമെന്ന അവബോധം സൃഷ്ടിക്കുകയും ചെയ്യുന്നു

	CO5. ഭാഷാപരവും രചനാപരവുമായ കഴിവുകളെ പരിപോഷിപ്പിക്കുകയും സർഗാത്മക സാഹിത്യരചനകൾക്ക് സഹായകമാകുംവിധം പരിശീലനം നൽകുകയും ചെയ്യുക.
UMA2207H: SHORT STORY AND NOVEL	**CO1. Analyze and appreciate the literary works.**
	CO2. Evaluate the socio-historic and cultural aspect of the text
	CO3. Create literary content with the reference to real life situations
	CO4. Apply the different varieties of prose composition
	CO5. Communicate Hindi in different situations
UMA2207G: GRAMMAR, TRANSLATION AND COMMUNICATION	**CO1. Identify grammatical concepts**
	CO2. Write sentences adhering to grammatical rules
	CO3. Translate simple texts from German into English
	CO4. Use German in simple conversations
	CO1. Develop limit of a function in order to investigate continuity and tangent lines in the graph of a function.

UMA2208: ANALYTIC GEOMETRY, TRIGONOMETRY AND DIFFERENTIAL CALCULUS	**CO2. Develop different techniques to find derivatives to solve mathematical problems.**
	CO3. Analyze tangents and normal to a conic.
	CO4. Find polar equations of different conic sections, their tangents and normal.
	CO5. Separate into real and imaginary parts of circular and hyperbolic functions
UMA2209: THEORY OF RANDOM VARIABLES	**CO1. Illustrate and formulate probability density functions and distribution functions for random variables.**
	CO2. Calculate probabilities and derive the marginal and conditional distributions of bivariate random variables.
	CO3. Find the mathematical expectations of random variables.
	CO4. Measure skewness and kurtosis of distributions.
	CO5. Identify the degree and nature of relationship between two attributes.
	CO1. Understand basics of www

UMA2210: NETWORKING AND WEB DEVELOPMENT	CO2. Develop basic html pages
	CO3. Understand and implement various styling using CSS
	CO4. Understand the basics of web development and software engineering
	CO5. Understand the basics of Database Management Systems and SQL
UMA2211: BANKING AND COMPUTERISED ACCOUNTING	CO1. Critically reflect the Indian Banking system, basic concepts and various innovation and reforms in banking sector
	CO2. Able to prepare bank reconciliation statement
	CO3. Compare and contrast traditional accounting with computerised accounting
	CO4. Apply the functional skills in the application of Tally Accounting Package.
	CO5. Apply the skill of financial decision making and interpreting the results using Tally Accounting Package.
	CO1. Use MS Office Package-Word, Excel, and Power Point.

UMA2212: COMPUTER FUNDAMENTALS (Non Credit)	**CO2. Use Google Forms**
	CO3. Use Google Slides.
	CO4. Use Google Document
UMA2213: TALLY ERP9 FOR BEGINNERS (Non credit)	**CO1. Equip the students to meet the demand of the industry by introducing them with Tally ERP9.**
	CO2. Develop practical skills in the application of Tally Accounting Package.
	CO3. Prepare final accounts of a company in Tally ERP.
SEMESTER III	
UMA2214M Malayalam: ദൃശ്യകലാസാഹിത്യം	**CO1.** കേരളത്തിന്റെ സമ്പന്നമായ ദൃശ്യ കലാപാരമ്പര്യത്തെക്കുറിച്ച് അറിവ് നേടുക**.**
	CO2. ചിത്രകല **,** ശില്പകല എന്നിവയെക്കുറിച്ച് ജ്ഞാനം നേടുക**.**
	CO3. പരസ്യകലയെക്കുറിച്ച് സൂക്ഷ്മമായ ജ്ഞാനം ആർജ്ജിക്കുക**.**

	CO4. മലയാള നാടക വേദിയുടെ ചരിത്രവികാസങ്ങളെക്കുറിച്ചുള്ള അറിവ് നേടുക.
	CO5. ചലച്ചിത്രകലയുടെ ചരിത്രവികാസങ്ങളെക്കുറിച്ചും ചലച്ചിത്രവും സമൂഹവും തമ്മിലുള്ള ബന്ധത്തെക്കുറിച്ചും പഠിക്കുക
UMA2214H: ANCIENT AND MODERN POETRY	**CO1. Appreciate literary works**
	CO2. Evaluate literary works
	CO3. Initiate creative writing skill
	CO4. Apply linguistic and communication skill
	CO5. Analyze various branches of literature
UMA2214G: GRAMMAR, GERMAN HISTORY, SOCIETY AND CULTURE	**CO1. Understand the history, society and culture of German speaking countries**
	CO2. Appraise Germany before and after the World War II
	CO3. Apply knowledge of grammar
	CO4. Comprehend texts at a higher level
UMA2215: CALCULUS	**CO1. Find the higher order derivatives of functions.**

	CO2. Expand functions using Taylor's and Maclaurin's series.
	CO3. Find the partial derivatives of functions.
	CO4. Calculate area under the given curve, length of the given arc, volume by slicing and rotation about an axis
	CO5. Solve double integrals and triple integrals using suitable substitutions
UMA2216: PROBABILITY DISTRIBUTIONS	CO1. Create an application of probability models to different contexts.
	CO2. Demonstrate the fitting of statistical data.
	CO3. Analyze various probability distributions and use for data processing.
	CO4. Apply the theorems to the data for statistical testing purpose.
	CO5. Apply sampling distributions to data analysis
UMA2217: PROGRAMMING WITH C LANGUAGE	CO1. Understand the basics of programming
	CO2. Acquire the basics of C language.

	CO3. Apply loops and decision control statements in problem solving.
	CO4. Understand the basics of arrays
	CO5. Implement functions using c.
UMA2218: ADVANCED ACCOUNTING	CO1.　Demonstrate the accounting knowledge in the preparation of Consignment account.
	CO2.　Demonstrate the accounting knowledge in the preparation of branch accounts.
	CO3.　Explain the basic knowledge of partnership.
	CO4.　Describe the various forms of reconstitution of partnership.
	CO5.　Demonstrate the accounting knowledge in the preparation of partnership accounts.
UMA2219: INDRODUCTION TO INCOME TAX	CO1. Understand different aspects of Income Tax
	CO2. Calculate the taxable income of a salaried person
SEMESTER IV	

UMA2220M: സാഹിത്യ രൂപങ്ങൾ	**CO1.** മലയാളനിരൂപണത്തിൻറെ അനുക്രമമായ വളർച്ചയെക്കുറിച്ച് വിദ്യാർത്ഥികളിൽ അവബോധം സൃഷ്ടിക്കുകയും അതുവഴി കുട്ടികളുടെ നിരൂപണാത്മകവാസനയെ പ്രകടിപ്പിക്കുന്നതിനുള്ള അവസരങ്ങൾ ഒരുക്കിക്കൊടുക്കുക.
	CO2. സ്മരണ / ആത്മകഥ / ജീവചരിത്രം എന്നിവയുടെ പ്രാധാന്യം മനസ്സിലാക്കി കുട്ടികളെ അവയുടെ രചനാത്മകതയുടെ തലത്തിലേക്ക് എത്തിക്കുന്നു.
	CO3. സഞ്ചാരസാഹിത്യത്തിൻറെ പ്രാധാന്യം കുട്ടികൾക്ക് മനസ്സിലാക്കിക്കൊടുത്തുകൊണ്ട് അവരെ അവയുടെ രചനാത്മക - ദൃശ്യാവിഷ്ക്കര തലത്തിലേയ്ക്ക് ഉയർത്തിക്കൊണ്ടു വരുന്നു.

	CO4. ഉപന്യാസരചനയുടെ അടിസ്ഥാന തത്വങ്ങളെക്കുറിച്ചുള്ള അവബോധമുണ്ടാക്കുന്നതിനും വിഷയാധിഷ്ഠിതമായിട്ടുള്ള വിശകലനാത്മകത ഉണർത്തി രചനാതലത്തിലേയ്ക്ക് കുട്ടികളെ എത്തിക്കുന്നു
	CO5. വിവർത്തനത്തെ വിദ്യാർത്ഥികൾക്ക് പരിചയപ്പെടുത്തിക്കൊണ്ട് ഈ ശാഖയെക്കുറിച്ചുള്ള ധാരണ അവരിൽ വളർത്തിയെടുക്കുന്നതിനും അവയുടെ അടിസ്ഥാനത്തിൽ അവരുടെ വിവർത്തനാത്മകമായ കഴിവിനെ ഉദ്ദീപിപ്പിക്കുകയും രചനാതലത്തിലേയ്ക്ക് കൊണ്ടുവരികയും ചെയ്യുന്നു
UMA2220H: PROSE	**CO1. Appreciate literary works**
	CO2. Evaluate literary works (social & cultural aspects)
	CO3. Initiate creative writing skill
	CO4. Analyze various branches of literature
	CO5. Apply linguistic and communication skill

UMA2220G: GERMAN LITERATURE: SELECTED READINGS - PROSE AND PROSE	CO1. Identify outstanding German writers
	CO2. Evaluate the contribution of well-known German writers to the growth of the German language
	CO3. Aesthetically appreciate works of German literature CO4. Use German language with competence and proficiency
UMA2221: VECTOR CALCULUS, THEORY OF EQUATIONS AND NUMERICAL METHODS	CO1. Evaluate velocity vector, tangent vector, normal vector, torsion and unit binormal vectors
	CO2. Evaluate partial derivatives, gradients and directional derivatives. CO3. Evaluate the line and surface integrals using fundamental theorem, Green's theorem, Stoke's theorem and Divergence theorem.
	CO4. Solve polynomial equations.
	CO5. Solve algebraic and transcendental equations.
	CO1. Apply problem solving techniques for aptitude problems.

UMA2222: MATHEMATICS FOR COMPETITIVE EXAMINATIONS AND SOFT SKILLS	**CO2. Identify the appropriate computing requirement to solve a problem.**
	CO3. Make logical conclusions with mathematical, statistical and quantitative information.
	CO4. Demonstrate effective speaking skills in English.
	CO5. Create resumes, use interview techniques
UMA2223: STATISTICAL INFERENCE	**CO1. Create awareness on the properties of estimators and various estimation for the evaluation of probabilistic models**
	CO2. Estimate confidence interval for Mean, Variance and Proportion
	CO3. Create awareness on case studies based on statistical tools.
	CO4. Apply various statistical testing procedures in practical problems for forecasting and decision making
	CO5. Analyse various practical problems statistically to reduce errors in data interpretation.
UMA2224: PYTHON PROGRAMMING	**CO1. Understand the configuration and basics of python**

	CO2. Implement various data types and operators of python
	CO3. Develop programs with Looping and branching statements.
	CO4. Implement python functions
	CO5. Implement packages and data visualization.
UMA2225: SKILL ENHANCEMENT IN DATA ANALYTICS	CO1. Analyze a real life problem and prepare a questionnaire
	CO2. Conduct a survey
	CO3. Analyze results
	CO4. Apply statistical methods and draw conclusions
	CO5. Write report in specific format
SEMESTER V	
UMA2226: MATHEMATICAL ANALYSIS	CO1. Examine the boundedness of sets of real numbers.
	CO2. Identify the interior points and limit points of sets.
	CO3. Distinguish open sets, closed sets and countable and uncountable sets.

	CO4. Examine the boundedness and convergence of sequence of real numbers.
	CO5. Verify the algebraic and geometric properties of complex numbers.
UMA2227: DIFFERENTIAL EQUATIONS	CO1. Demonstrate the method of solving exact differential equations.
	CO2. Solve first order ordinary differential equations.
	CO3. Solve higher order homogeneous linear differential equations.
	CO4. Solve higher order non homogeneous linear differential equations.
	CO5. Solve the equation of the form $dx/P = dy/Q = dz/R$.
UMA2228: ABSTRACT ALGEBRA	CO1. Analyse finite groups and abelian groups
	CO2. Analyse cyclic groups
	CO3. Distinguish between group isomorphism, automorphism and homomorphism
	CO4. Analyse ring and field

	CO5. Find characteristics of a ring
UMA2229: ENVIRONMENTAL STUDIES AND HUMAN RIGHTS	CO.1 Describe how our life-support system is maintained by all the species that make-up
	the bio-sphere, so that they are prepared to sustain biodiversity at all costs.
	CO.2 Apply the observation skills and critical thinking to the analysis of a problem-
	infested environment.
	CO.3 Analyze the principles of ecology and the environmental damage to life-supportive
	elements such as air, land and water on a global scale.
	CO.4 Demonstrate the relation between Fibonacci numbers and nature.
	CO.5 Describe the human rights and their applications in Indian context.
UMA2231: LaTeX	CO1. Write ordinary text, mathematical formulae as equations

	CO2. Organize texts using formatting comments
	CO3. Know insertion of symbols and operators in texts
	CO4. Create array, table, header and font
UMA2230: APPLICABLE MATHEMATICS [Open course]	**COUMA2230.1: Apply the factorization method and quadratic formula to solve quadratic equations, test the divisibility of numbers and find the logarithm of numbers.**
	COUMA2230.2: Plot points and draw graphs of straight lines.
	COUMA2230.3: Apply problem solving techniques to solve aptitude problems.
	COUMA2230.4: Find the derivatives and integrals of functions
	COUMA2230.5: Make conclusions with mathematical, statistical and quantitative information.
SEMESTER VI	

UMA2232: REAL ANALYSIS	CO1. Apply tests to examine the convergence of infinite series.
	CO2. Distinguish continuity, uniform continuity and discontinuity of functions.
	CO3. Examine the integrability of real valued bounded functions defined on intervals.
	CO4. Prove theorems and properties regarding integrable functions.
	CO5. Test the convergence of sequence and series of functions.
UMA2233: COMPLEX ANALYSIS	CO1. Identify the analytic functions
	CO2. Solve the integrals of complex functions by applying theorems and results
	CO3. Examine the convergence of complex sequence and series.
	CO4. Find singular points and their residues.
	CO5. Solve improper integrals.

UMA2234: GRAPH THEORY AND METRIC SPACES	**CO1. Demonstrate the concepts graphs, trees and connectivity**
	CO2. Find the matrix representation of a given graph
	CO3. Demonstrate various results related to tours, paths and cycles
	CO4. Apply different cryptographic methods to encipher and decipher texts.
	CO5. Distinguish lattices, semi lattices and complete lattices.
UMA2235: LINEAR ALGEBRA	**CO1. Solve the system of linear equations using matrices**
	CO2. Analyse vector space, its basis and dimension
	CO3. Analyse the notion of linear transformation and its matrix
	CO4. Evaluate the eigen values and eigen vectors of a matrix
	CO5. Demonstrate the method of Diagonalisation

UMA2236A: OPERATIONS RESEARCH	**CO1. Convert real life situations to mathematical models and find its optimum solution.**
	CO2. Solve linear programming problems by using algebraic method.
	CO3. Apply transportation problem in real life situations
	CO4. Apply assignment problem in real life situations
	CO5. Apply the concept of Game theory in various competitive situations.
UMA2236B: TOPOLOGY	**CO1. Understand the basic concept of topology and its significance in real life situations**
	CO2. Develop precise knowledge about closed sets, limit points and Metric topology
	CO3. Learn the concept of connected spaces in the real line
	CO4. Study the properties of compactness
UMA2236C: THEORY OF COMPUTATION	**CO1. Understand the basic concept of automata, DFA and NDFSA**

	CO2. Study the concept of Grammer and its applications
	CO3. Perform operations on Languages and Automata
	CO4. Construct Finite automata equivalent to regular expressions
UMA2237: PROJECT	CO1. Identify research or academic problems and solve it using proper methodology.
	CO2. Develop innovative ideas to model real world problems.
	CO3. Develop research skills in core area of mathematics