



SANATANA DHARMA COLLEGE

ALAPPUZHA

Affiliated to the University of Kerala
Reaccredited by NAAC with A+ grade



CRITERION 1

CURRICULAR ASPECTS

1.2.1 & 1.2.2

**CERTIFICATE/ VALUE ADDED
COURSES – SYLLABUS**

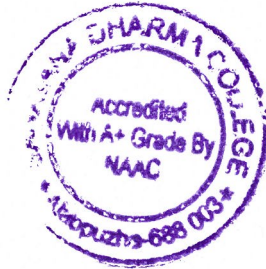


SANATANA DHARMA COLLEGE

ALAPPUZHA

DECLARATION




The detailed syllabus of each certificate/ value added courses conducted in the college has been attached below



PRINCIPAL

Prof. (Dr.) PREMA K.H.
PRINCIPAL
PEN : 467693
S.D. COLLEGE ALAPPUZHA

TOPICS TO BE COVERED

-  Theoretical Background, Classical Mechanics, Quantum Mechanics, and Advanced Quantum Calculations
-  Structural Elucidation, Thermochemistry, Spectral characterization, Non-linear Optical Properties, Advanced Computational Analysis.
-  Familiarising and Hands-on training on Softwares for Computational Calculations.

RESOURCE PERSONS

Research Associates & Postdoc Fellows with expertise in this area

CO-ORDINATOR

Smt. Manju V
Assistant Professor
Department of Physics
SANATANA DHARMA COLLEGE

CONVENOR

Dr. S. Lekshmi, Head
Department of Physics
SANATANA DHARMA COLLEGE

Contact:

+91-9447906025

ABOUT THE COURSE

P.G. Department of Physics & Research Centre, Sanatana Dharma College, Alappuzha is organizing a 4-month online certificate course on "**Density Functional Theory and its Applications**".

BACKGROUND

The branch of Computational chemistry is identified to be one of the nascent applications of technological growth. Within this branch, different algorithms are introduced by incorporating aspects of theoretical chemistry for identifying and predicting chemical properties of compounds. On analyzing the results obtained from computational chemistry, it was fascinating to note that the theoretical results provide information with the same quality of the data obtained by conducting experiments.

Density functional theory (DFT) is a quantum mechanical approach used to investigate the structure (principally the ground state) of many-body systems, in particular atoms, molecules, and the condensed phases.

WHO CAN PARTICIPATE

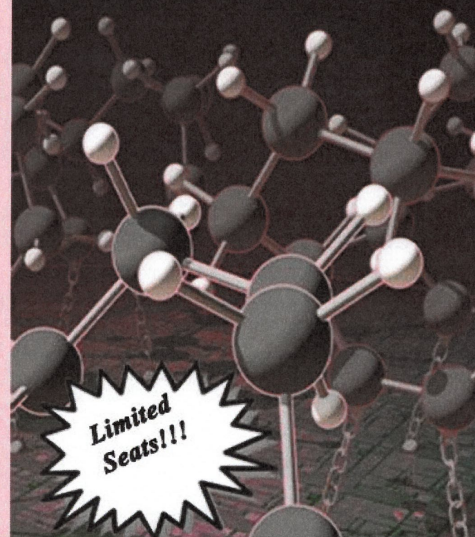
Faculty members and research scholars, Post-Graduate and Graduate students in Physics, Chemistry, Botany, Biotechnology, Material Science and Engineering.

ADDITIONAL INFORMATION

Weekly two classes. Sessions will be delivered through **google meet** according to the schedule. Assignments will be provided to supplement the theory session. Participants need laptop/PC for hands-on sessions.

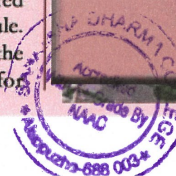


Post Graduate Department
of Physics & Research Centre
Sanatana Dharma College,
Alappuzha, Kerala



Limited
Seats!!!

A course on
**Density Functional Theory
&
Its Applications**
18/11/2021



Density Functional Theory and Its Applications

Module 1: Theoretical background:

Computational calculations, ab-initio methods of calculation; semi empirical method, Hartree fock method, Density function theory, different levels of theories, basis sets.

Module 2: Structural Characterization:

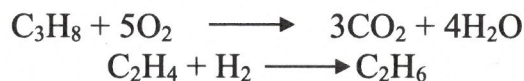
Potential energy surface & geometry optimization (*saddle point, local minima, global minima*), correlating experimental and theoretical parameters (bond length and bond angle), frontier molecular orbital analysis, natural bond orbital analysis, Molecular electrostatic potential (MEP and ESP plots) Practice set of molecules; NH₃, CO₂, H₂O, CH₄. Assignment; any molecule that candidate selects.

Module 3: Spectral Characterization:

Frequency calculations, IR spectra, Raman spectra, UV - visible spectra, NMR spectra, correlating experimental and theoretical spectrum. Practice set of molecules; NH₃, CO₂, H₂O, CH₄. Assignment on the selected molecule.

Module 4: Thermochemistry:

Enthalpy, entropy, Gibbs free energy, Practice set of molecules; NH₃, CO₂, H₂O, CH₄. Assignment on the selected molecule. Thermodynamic feasibility of reactions, global descriptive parameters, Practice set on the following reactions.



Assignment on the any selected reaction.

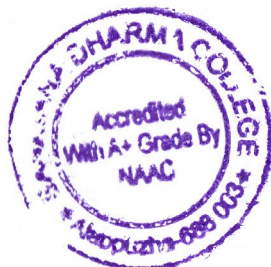
Module 5: Nonlinear Optical Properties:

Dipole moment, polarizability, hyperpolarizability, comparing the values of polarizability and hyperpolarizabilities of molecules with one of the prototypical molecules; Urea. Practice set on one organic molecule. Assignment on the any selected reaction.

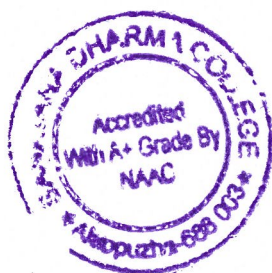
Module 6: Advanced Computational Calculations:

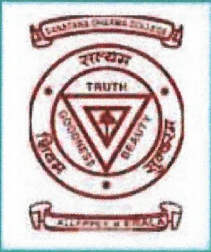
ONIOM calculations, calculations with polymers, excipient drug interactions using ONIOM, rotation of side chains of a molecule, activation energy for non-Johari Goldstein relaxation, calculations with heavy metal complexes.

NB: (4-month duration course, having weekly 2 classes, Rs/-2000 per month)



Sl.No:	Module	Hours
1	Theoretical background	4
2	Structural Characterization	6
3	Spectral Characterization	6
4	Thermochemistry	6
5	Nonlinear Optical Properties	4
6	Advanced Computational Calculations	6





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Admission Notification 2020-21

ബഹുമാന്യരെ,
എസ് ഡി കോളേജ് ആലപ്പുഴയിൽ ഈ അക്കാദമിക് വർഷം യു.ജി.സി അംഗീകാരത്തോടെ പുതുതലമുറ കോഴ്സുകൾ ആരംഭിക്കുന്നു.

Sl. No.	Programme	Trade/Courses	Duration	Eligibility	Application Registration Link
1.	Certificate	Goods and Service Tax-Accounts Assistant	6 months	10, +12	https://forms.gle/qKa9uCvYEbfZrxoE9
2.	Certificate	Equality Dealership	6 months	10, +12	

HOW TO APPLY :

- Candidates can apply online by clicking/ touching the respective registration link.
- Last date for submission of application is 10/12/2021.
- No age limit for applying.
- Selection will be based on marks of Qualifying exam.

For further enquiries, kindly contact : 9446536514

വളരെ അധികം തൊഴിൽ സാധ്യതയുള്ള ഈ കോഴ്സുകൾക്ക് അടിസ്ഥാന വിദ്യാഭ്യാസം 10, +12 മാത്രമാണ്, പ്രായപരിധിയില്ല. താല്പര്യമുള്ളവർ 10/12/2021 നകം ഓൺലൈനിൽ അപേക്ഷിക്കുക

വിശദ വിവരങ്ങൾക്ക് കോളേജ് വെബ്സൈറ്റ് സന്ദർശിക്കുക

<http://www.sdcollege.in/>



Principal

2022-23

SANATANA DHARMA COLLEGE ALAPPUZHA

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ADMISSION NOTIFICATION 2021-22, SECOND BATCH



ബഹുമാന്യരെ,
സനാതന ധർമ്മ കോളേജ് ആലപ്പുഴയിൽ ഈ അക്കാദമിക് വർഷം യു. ടി. സി അംഗീകാരത്തോടെ പുതുതലമുറ കോഴ്സുകൾ ആരംഭിക്കുന്നു

Sl. No	Programme	Trade/course	Duration	Eligibility	Application Registration Link
1	Certificate	Goods & service tax-Accounts Assistant	6 months	10,+2	http://farma.gloagk.edu/CV/Eb1ZrXoE9
2	certificate	Equity dealership	6 months	10,+2	

HOW TO APPLY:

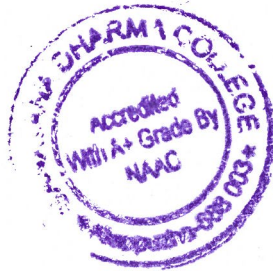
- Candidates can apply by clicking / touching on the above registration link.
- Last date for submission of application is 31/12/2021.
- No age limit for applying.
- Selection will be based on marks of qualifying exams.

For further enquiries, kindly contact: 9446536514

വളരെ അധികം തൊഴിൽ സാധ്യതയുള്ള ഈ കോഴ്സുകൾക്ക് അടിസ്ഥാന വിദ്യാഭ്യാസം 10,+2 മാത്രമാണ്, പ്രായപരിധി ഇല്ല. താൽപ്പര്യമുള്ളവർ 31/12/2021 നകം ഓൺലൈനിൽ അപേക്ഷിക്കുക. വിശദ വിവരങ്ങൾക്ക് കോളേജ് വെബ്സൈറ്റ് സന്ദർശിക്കുക

<http://www.sdcollege.in/>

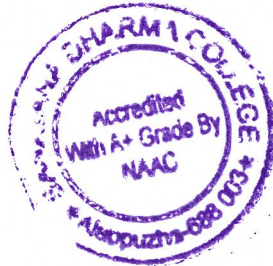
PRINCIPAL



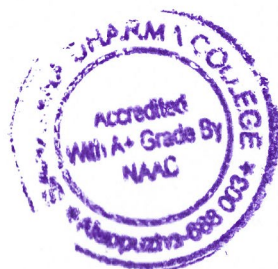
**SYLLABUS SCHEDULE FOR UGC APPROVED NSQF CERTIFIED -
CERTIFICATE PROGRAMME**

PROGRAMME: GOODS AND SERVICE TAX – ACCOUNTS ASSISTANT DURATION : 6 MONTHS

Paper Name	Learning outcome	Hours allotted
Introduction to GST	Describe Goods & Services with their cross linkages Identify the Fundamental Concepts of GST Identify cases where CGST and SGST will work simultaneously Explain how IGST is levied Identify whether a transaction is taxable under CGST, IGST or SGST Identify the Incidence of Taxation Learn about Time of Supply of Goods Learn on Purpose of place of supply Define Location of supplier of goods Define the recipient with respect to supplies involving payment and supplies not involving payment	40 hours (15 hours of online training if required)

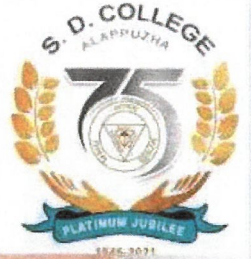


<p>GST - Theory</p>	<p>Outline the PAN based Registration Process, its rules, and the Purpose of registration Explain single or separate registration for business vertical Identify whether registration should be done centrally or selectively in each state List the details to be furnished during registration Identify common mistakes made during registration Differentiate between Taxable Person vs. Registered Person Identify the Registration Timelines – Migrations Explain the benefits of registration Demonstrate form filling with case studies</p> <p>Define Input Credit Identify Input Tax Credit eligibility using case studies Explain the concept of reversal of VAT Define tax liability for Goods in Transit Define Consideration Value transactions having non-monetary consideration</p>	<p>45 hours (15 hours of online training if required)</p>
<p>GST – Practise</p>	<p>Maintain different types of ledgers Prepare documents such as Invoice, Credit Note and Debit Note. Identify the different types of returns and their applicability to the business- Monthly Returns, Quarterly Returns Navigate the GST Websites-GSTN, CBEC etc. File periodic returns online</p> <p>Identify the Types of Payment, Modes of Payment, Rules of Collection of Tax Prepare different Challans, CPIN & CIN Distinguish between TDS and TCS Identify cases for reversal of credit Calculate tax based on various Case studies Memorize the due dates for payment List the Penalties for late payments Demonstrate the process of online payment</p>	<p>45 hours (15 hours of online training if required)</p>





PG & RESEARCH DEPARTMENT OF COMMERCE

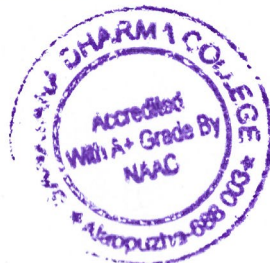


Certificate Programme in MS Excel

Venue: Computer Lab
Time : 9:30am



MS EXCEL



CERTIFICATE PROGRAMME ON MICROSOFT EXCEL
MAY 2023

SYLLABUS

Create Worksheets and Workbooks	<ul style="list-style-type: none">• Creating new workbooks• Saving workbooks• Closing workbooks• Opening workbooks• Selecting cells• Import data• Add a worksheet to an existing workbook• Copy and move a worksheet
Navigate in Worksheets and Workbooks	<ul style="list-style-type: none">• Search for data within a workbook• Navigate to a named cell, range, or workbook element• Insert and remove hyperlinks



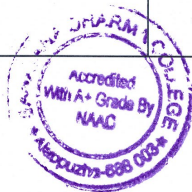
<p>Format Worksheets and Workbooks</p>	<ul style="list-style-type: none"> • Rename a worksheet • Change worksheet order and colour • Insert and delete columns or rows • Change workbook themes • Adjust row height and column width • Insert headers and footers
<p>Customise Options and Views for Worksheets and Workbooks</p>	<ul style="list-style-type: none"> • Hide or unhide worksheets • Hide or unhide rows and columns • Customise the Quick Access toolbar • Modify document properties • Display formulas
<p>Configure Worksheets and Workbooks for Distribution</p>	<ul style="list-style-type: none"> • Inspect a workbook for hidden properties or personal information • Inspect a workbook for accessibility and compatibility issues
<p>Apply Custom Data Formats and Validation</p>	<ul style="list-style-type: none"> • Create custom number formats • Populate cells by using advanced Fill Series options • Configure data validation



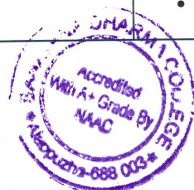
Apply Advanced Conditional Formatting	<ul style="list-style-type: none"> • Create custom conditional formatting rules • Create conditional formatting rules that use formulas • Manage conditional formatting rules
Data Filtering	<ul style="list-style-type: none"> • Using AutoFilters • Applying a custom AutoFilter • Creating advanced filters • Applying multiple criteria • Using complex criteria • Copying filtered results to a new location • Using database functions
Create and Modify Custom Workbook Elements	<ul style="list-style-type: none"> • Create and modify simple macros • Insert and configure form controls
Auditing Worksheets	<ul style="list-style-type: none"> • Tracing precedent and dependent cells • Tracing errors • Cell Validation
Create and Manage Tables	<ul style="list-style-type: none"> • Create an Excel table from a cell range • Convert a table to a cell range • Add or remove table rows and columns



Manage Table Styles and Options	<ul style="list-style-type: none"> • Apply styles to tables • Configure table-style options • Insert total rows
Filter and Sort a Table	<ul style="list-style-type: none"> • Filter records • Sort data by multiple columns • Change sort order • Remove duplicate records
Summarise Data by using Functions	<ul style="list-style-type: none"> • Perform calculations by using the SUM function • Perform calculations by using MIN and MAX functions • Perform calculations by using the COUNT function • Perform calculations by using the AVERAGE function
Perform Conditional Operations by using Functions	<ul style="list-style-type: none"> • Perform logical operations by using the IF, SUMIF and AVERAGEIF functions • Perform statistical operations by using the COUNTIF function
Format and Modify Text by using Functions	<ul style="list-style-type: none"> • Format text by using RIGHT, LEFT, and MID functions • Format text by using UPPER, LOWER, and PROPER functions • Format text by using the CONCATENATE function



Create Charts	<ul style="list-style-type: none"> • Create a new chart • Add additional data series • Switch between rows and columns in the source data • Analyze data
Format Charts	<ul style="list-style-type: none"> • Resize charts • Add and modify chart elements • Apply chart layouts and styles • Move charts to a chart sheet
Insert and Format Objects	<ul style="list-style-type: none"> • Insert text boxes and shapes • Insert images • Format charts • Modify object properties • Add alternative text to objects for accessibility
Apply Custom Data Formats and Validation	<ul style="list-style-type: none"> • Create custom number formats • Learn how to use the Flash fill function • Populate cells by using advanced Fill Series options • Configure data validation



Apply Advanced Conditional Formatting and Filtering	<ul style="list-style-type: none"> • Create custom conditional formatting rules • Create conditional formatting rules that use formulas • Manage conditional formatting rules
Create and Modify Custom Workbook Elements	<ul style="list-style-type: none"> • Create custom colour formats • Create and modify cell styles • Create and modify custom themes • Create and modify simple macros • Insert and configure form controls
Prepare a Workbook for Internationalization	<ul style="list-style-type: none"> • Display data in multiple international formats • Apply international currency formats • Manage multiple options for Body and Heading fonts
Apply Functions in Formulas	<ul style="list-style-type: none"> • Perform logical operations by using AND, OR, and NOT functions • Perform logical operations by using nested functions • Perform statistical operations by using SUMIFS, AVERAGEIFS, and COUNTIFS functions
Look up data by using Functions	<ul style="list-style-type: none"> • Look up data by using the VLOOKUP function • Look up data by using the HLOOKUP function



Apply Advanced Date and Time Functions	<ul style="list-style-type: none"> • Reference the date and time by using the NOW and TODAY functions • Serialize numbers by using date and time functions
Perform Data Analysis and Business Intelligence	<ul style="list-style-type: none"> • Import, transform, combine, display, and connect to data • Consolidate data • Perform what-if analysis by using Goal Seek and Scenario Manager • Calculate data by using financial functions
Troubleshoot Formulas	<ul style="list-style-type: none"> • Trace precedence and dependence • Monitor cells and formulas by using the Watch Window
Define Named Ranges and Objects	<ul style="list-style-type: none"> • Name cells • Name data ranges • Name tables • Manage named ranges and objects



<p>Create and Manage PivotTables</p>	<ul style="list-style-type: none"> • Create PivotTables • Modify field selections and options • Create slicers • Group PivotTable data • Add calculated fields • Format data
<p>Create and Manage Pivot Charts</p>	<ul style="list-style-type: none"> • Create PivotCharts • Manipulate options in existing PivotCharts • Apply styles to PivotCharts • Drill down into PivotChart details

