



RISE Krishna Sai Gandhi Group of Institutions::Ongole
(Autonomous)

(Approved by AICTE-New Delhi, Affiliated to JNTUK, Kakinada)
Accredited by NAAC & Recognized under UGC 2(f)
NH-16, Valluru-523272, Ongole, Prakasam District, A.P

DEPARTMENT OF SCIENCE & HUMANITIES

Minutes of Board of Studies Meeting (DE&VC)

Date: 02/12/2024

The Second External Board of Studies Meeting for Mathematics of the Department of Science and Humanities was held online on 02.12.2024 at 1:15 PM via Google Meet platform to finalize syllabus for second semester. The following members were present:

S.No.	Name of the Member	Designation	Position	Signature
1	Mrs. P Sridevi	Head of The Department	Chairman	
2	Dr. K Sobhan Babu	Prof. & HOD, JNTUK UCEN.	University Nominee and External BoS Member	Approved via E-mail
3	Dr. G Charan Kumar	Asst. Professor, Dept Of Mathematics, KLU University.	Subject Expert 1 and External BoS Member	
4	Dr. Venkata Kalyani	Asst. Professor, Dept of Mathematics, Vignan University.	Subject Expert 2 and External BoS Member	Approved via E-mail
5	Mrs. M Prasanthi	Associate Manager, Accenture.	Industry member	Approved via E-mail
6	Mrs. A Anuradha	Assoc. Professor	Associate Professor, Faculty Member	
7	Mrs. K Sravanthi	Asst. Professor	Assistant Professor, Faculty Member	
8	Ms.D.Spandana	Pursuing M.S., USA	Alumni Member	Approved via E-mail

At the onset of the meeting, the Chairman of BoS, Mrs. P Sridevi, welcomed all the members and introduced members to the External Subject Experts. The meeting began with the presentation of the syllabus of Differential Equations & Vector Calculus of I-II under RG24 regulations prepared by the internal BOS members.



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Resolutions in Meeting

Agenda:

1. Discussion and approval of the syllabus of Differential Equations & Vector Calculus.

Resolutions:

In the 2nd BoS Meeting, held on 2nd Dec, 2024 the following are resolved.

1. Presented the syllabus of Differential Equations & Vector Calculus and got the approval from the BoS members and finalized syllabus for the II Semester based on university regulations. It is in detail in Annexure-I.

Encl: Annexure –I

General Comments

- The topic “Introduction to first order Differential equations” has been incorporated into the syllabus, as recommended by Dr. K Sobhan Babu whose suggestion was further augmented by the valuable input of Dr. G Charan Kumar.

Subject expert comments

- Dr. G Charan Kumar formally recommended to include the topic Variable Separable method to solve the first order differential equations as it is the base for all the remaining methods and also useful in the applications of Differential equations.
- All the BoS members of Mathematics endorsed Dr. G Charan Kumar's suggested modification.

The meeting closed with Vote of Thanks by one of the BoS Member Mrs. K. Sravanthi.



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DIFFERENTIAL EQUATIONS AND VECTOR CALCULUS

(Common to All Branches of Engineering)

Course Objectives:

- To enlighten the learners in the concept of differential equations and multivariable calculus.
- To furnish the learners with basic concepts and techniques at plus two level to lead them into advanced level by handling various real-world applications.

Course Outcomes: At the end of the course, the student will be able to

CO1: Solve the differential equations related to various engineering fields.

CO2: Identify solution methods for partial differential equations that model physical processes.

CO3: Interpret the physical meaning of different operators such as gradient, curl and divergence.

CO4: Estimate the work done against a field, circulation and flux using vector calculus.

UNIT I Differential equations of first order and first degree

Introduction to First order Differential Equations, Linear differential equations – Bernoulli's equations- Exact equations and equations reducible to exact form. Applications: Newton's Law of cooling – Law of natural growth and decay- Electrical circuits.

UNIT II Linear differential equations of higher order (Constant Coefficients)

Definitions, homogenous and non-homogenous, complimentary function, general solution, particular integral, Wronskian, Method of variation of parameters. Simultaneous linear equations, Applications to L-C-R Circuit problems and Simple Harmonic motion.

UNIT II Partial Differential Equations

Introduction and formation of Partial Differential Equations by elimination of arbitrary constants and arbitrary functions, solutions of first order linear equations using Lagrange's method. Homogeneous Linear Partial differential equations with constant coefficients.

UNIT IV Vector differentiation

Scalar and vector point functions, vector operator Del, Del applies to scalar point functions- Gradient, Directional derivative, del applied to vector point functions-Divergence and Curl, vector identities.



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UNIT V Vector integration

Line Integral-circulation, work done, surface integral-flux, Green's theorem in the plane(without proof)-Stoke's theorem (without proof)-volume integral-Divergence theorem (without proof) and related problems.

Textbooks:

1. Higher Engineering Mathematics, B. S. Grewal, Khanna Publishers, 2017, 44th Edition
2. Advanced Engineering Mathematics, Erwin Kreyszig, John Wiley & Sons, 2018, 10th Edition.

Reference Books:

1. Thomas Calculus, George B. Thomas, Maurice D. Weir and Joel Hass, Pearson Publishers, 2018, 14th Edition.
2. Advanced Engineering Mathematics, Dennis G. Zill and Warren S. Wright, Jones and Bartlett, 2018.
3. Advanced Modern Engineering Mathematics, Glyn James, Pearson publishers, 2018, 5th Edition.
4. Advanced Engineering Mathematics, R. K. Jain and S. R. K. Iyengar, Alpha Science International Ltd., 2021 5th Edition (9th reprint).
5. Higher Engineering Mathematics, B. V. Ramana, , McGraw Hill Education, 2017



SH HOD <shhod@risekrishnasaigandhi.edu.in>

(no subject)

Sobhan Babu <ksobhanjntu@gmail.com>

Thu, Jan 9, 2025 at 10:41 AM

To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Dear Madam, Greetings. Here with I have approved the above syllabus
Thanks

[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

(no subject)

Tue, Jan 7, 2025 at 6:07 PM

kalyani uppuluri <u.v.kalyani@gmail.com>
To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Respected sir/madam,

I approve the syllabus and minutes of the meeting.

Best regards,
Dr. U. V. Kalyani

[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

(no subject)

Prasanthi Muppalaneni <muppalaneniprasanthi@gmail.com>

Tue, Jan 7, 2025 at 5:31 PM

To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Cc: kalyani uppuluri <u.v.kalyani@gmail.com>, Spandana <spandana3007@gmail.com>

Hi Bos Members,

I approve these minutes of BOS meeting.

Regards,

Prasanthi

[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

(no subject)

kalyani uppuluri <u.v.kalyani@gmail.com>
To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Tue, Jan 7, 2025 at 6:07 PM

Respected sir/madam,

I approve the syllabus and minutes of the meeting.

Best regards,
Dr. U. V. Kalyani

[Quoted text hidden]



SH HOD <shhod@risekrishnasaigandhi.edu.in>

(no subject)

Spandana <spandana3007@gmail.com>

Tue, Jan 7, 2025 at 8:20 PM

To: SH HOD <shhod@risekrishnasaigandhi.edu.in>

Cc: kalyani uppuluri <u.v.kalyani@gmail.com>, muppаланeniprasanthi@gmail.com

The minutes are approved as presented.

Best Regards,

D. Spandana

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